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WE are, of course, always willing to give our subscribers any information in our power as to the book or books which may aid them in prosecuting their studies or investigations. At the same time, it is much easier to ask than to answer a question, and we often have to spend a good deal of time in hunting through catalogues and libraries. Moreover, the same questions are asked and answered again and again, and so, perhaps, use for the benefit of a single questioner an unjustifiable amount of our space. To cure these slight evils, we have established a department for book advertisements — which will be found elsewhere in this issue — and we hope that before writing to us for assistance, those who stand in need of a book will examine this list carefully — and then write for it, not to us, but direct to the firm who advertises it. We believe that our subscribers will find this new department of use, and we know that publishers stand ready to expand it to many times its present volume if they find that architects wish to procure books in this way.

THE New York *Times* says that there is trouble in getting competent assistants in the office of the Supervising Architect at Washington, and that, apparently, with the idea of rendering the task more easy, a regulation was passed by Congress, just before the adjournment, exempting the office from the operation of the Civil Service Act, so that the Supervising Architect can appoint any one he likes. It will be remembered that a great uproar was raised during Mr. Freret's term, about the Civil Service examination for a few vacancies in his office. The disappointed candidates, or the newspapers for them, protested that one man's brain could not hold all the knowledge they were expected to possess; and, in point of fact, no one passed the examination, although we do not remember seeing any of the questions quoted which appeared to us beyond the reach of human intelligence. Now, however, it appears that not only qualified candidates, but candidates of any sort, are lacking, and that the Supervising Architect is compelled to put up with inferior assistance, because he cannot, for the salaries which the Government is willing to pay, get such men as a private architect would employ for such work. As it has been demonstrated officially, over and over again, that the cost of the architectural work on the Government buildings, under the present system, is greater, in some instances very much greater, than if it were done by private architects, as it is everywhere else in the world, and according to present accounts, the work is worse done, we should think it would occur to some one besides the architects, who know it well enough, but do not like to be conspicuous in calling attention to it, that it is about time to put a stop to the practice. The fact is that the Supervising Architect's office has no reason for existing, and ought to have been abolished long ago. It is generally supposed to have been instituted, in the corrupt period which followed the war, to serve under a thin veil of plausibility, as a political agency. Under the faithful and upright direction of the men who have administered it, the expectation that it could be used for such a purpose has been disappointed, and under the more wholesome conditions which now exist at Washington, there is no probability that it can ever be used as a means of corruption. Meanwhile, however, it pursues its ponderous way, grinding out its mediocre designs, and filling the country with public buildings which have not the slightest artistic interest, or even superior merit of arrangement, while, if the ordinary practice of civilized countries had been followed for the last twenty years, we should by this time have had nearly every important town in the United States adorned with a masterpiece of the best work that American architects are capable of, and should, besides, have saved many million dollars.

MR. JOHN S. CORDER recently read before the Leeds and Yorkshire Architectural Society a very interesting paper on the "Timber-framed Buildings of East Anglia." We all know something of the appearance of the old English timber-houses, but very few people, even in England, know much about their history, and Mr. Corder's information is not only valuable, but new to most of us. According to him, all the timber-framed buildings in the East of England were erected during the fifteenth, sixteenth and seventeenth centuries, that is, during the reigns of the later Plantagenets, the Tudors and Stuarts. All, or nearly all of them, it appears, belonged to merchants, or their guilds or companies, or to religious institutions. As in modern days in this country, the frame of the timber-houses with which our ancestors were familiar, rested on a sill, often of large size, — a foot square or so, which was laid on the rubble foundation, the angles being halved or framed and pinned. Originally, all the timbers of the framing were visible outside, and the sill was often moulded on the exterior, so as to form an ornamented plinth. The sill was mortised for the studs, which were often seven or eight inches wide on the face, and were set eight or nine inches apart, making the spaces between them nearly of the same width as the timbers themselves. Just below the second floor, the studs were framed into what we should call a girt. At points where a particularly heavy timber above was to be supported, a thicker stud was set, which was usually moulded on the inside, and carved on the outside, or formed like a pilaster. All the posts appear to have been cut off by the girt, the corner-posts not running through the next story as they would with us. The second-story beams rested on the girt, and projected over it from one foot and a half to two feet, carrying at their outer end a sill, on which rested the studs of the next story. These carried another girt, and the next tier of beams projected again in the same way. The walls of the upper stories were braced with curved timbers, halved upon the studs and pinned. When the frame was up, the intervals between the studs were filled-in with a mixture of clay and chopped straw, plastered on a sort of basket-work panel, of willow twigs woven together, fitted into the spaces between the timbers, which were often previously grooved to receive it. After the clay was hard, the panel was finished by plastering it with lime-mortar, mixed with clay, on both sides, flush with the studding; and ornamental figures were often drawn in the fresh mortar, and decorated with color. This construction was then known as "post and panel work." The filling between the timbers, of lime mortar on a clay foundation, was likely to swell and decay if it should get soaked with water, and for this reason each story was made to shelter the one below it, by the projection characteristic of the style. This explanation is, we believe, new, but it seems extremely reasonable. Mr. Corder acknowledges that, in city houses, greater space was obtained for chambers, without encroaching on the street, by the projection of the stories, but he observes that the same projection was used on nearly all half-timbered houses in the conntry, where plenty of room was available, so that he believes that the constructional reason was the more important one, and in this most architects will agree with him.

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AS those architects who have attempted half-timber construction in this country are aware, a wall built by the ancient method soon begins to admit air freely, through the crevices left between the posts and the plaster panels by the shrinkage of the timber. Our ancestors felt the draughts coming through these crevices, and tried to stop them by hanging the inside of the walls with tapestry, or by covering it with panelling; and panelling was sometimes applied on the exterior to cover the joints; but the cheaper and more effectual method of lathing and plastering both the inside and the outside of the walls soon prevailed over the others, and a large proportion of the English half-timber structures have been treated in this way. Where a house stood on a corner, it was obviously desirable to have it overhang on both streets, but, as architects need not be told, this was not always an easy thing to accomplish. Usually, the difficulty was met by putting at the angles in the first story, an enormous post, sometimes three feet square or more, which carried a diagonal girder into which the floor-beams were framed, all the floorbeams running at right angles to the street over which their outer ends projected. A post of such dimensions, particularly with the bracket which was usually formed on it to carry the outer end of the projecting girder, and which was often a piece of a natural branch, offered a tempting opportunity for carving, and these corners are generally elaborately sculptured, with figures, coats-of-arms, and so on. The floors were usually covered with inch boards, the beams which supported them being moulded or carved, and left exposed; but the transmission of sound through them was found objectionable then, as it is with similar floors now, and in the better class of houses boards were nailed to the underside of the joists, and the joints covered with moulded battens — a construction which is even now quite common. Later, the same effect was obtained in a much cheaper way, by lathing the underside of the joists, and covering the whole with a uniform coat of plastering, in the way which has ever since been generally followed. The rest of the construction was quite simple. Panelled doors were then little known and most doors were of moulded sheathing, battened, and hung with large wrought-iron hinges, which spread so far over the door as to give stiffness. The windows were usually mullioned in wood, and glazed with leaded glass, set in tight, with the exception of a few swinging lights, in iron frames.

LA SEMAINE DES CONSTRUCTEURS gives a very good account of the famous Baron Haussmann, who died recently in Paris, at the age of eighty-two. Since the fall of the Second Empire, Baron Haussmann has lived very quietly, but he had a great part in the making of the modern Paris, and will be long remembered as one of the most energetic instruments of the reforms carried out by Napolean III. Curiously enough, Haussmann was educated for a musician, at the Paris Conservatoire; but, before he had completed his course, concluded to study law, and was admitted to the bar. After the accession of the Orleans family, while he was still a very young man, he was appointed sub-prefect of Nerac, and was transferred later to Saint Girons and then to Blaye. Under the Republic, he was advanced to the rank of prefect, first of the Department of Var, then of Yonne, and then of the Gironde. In 1853, at the age of forty-four, he was made Prefect of the Seine, to succeed M. Bayer, and began the career which made him famous. He found a firm supporter in the Emperor, and, by attacking with a resolute hand the nests of filth and vice of which Victor Hugo tells us, sweeping away rotten hovels, and opening wide, straight streets everywhere, he let in light, air and decency through nearly all Paris. To him is due the "*percement*" of the Boulevard de Sebastapol, the Boulevard Saint Michel, and the Boulevard Haussmann, while his example led the way to the later improvements of the Boulevard Saint Germain and the Avenue de l'Opéra; and he was the first to secure the improvement of the Bois de Boulogne, the Parc de Vincennes, the Parc Monceau, and that of the Buttes Chaumont; while the whole Batignolles quarter, now one of the most beautiful parts of Paris, was developed by him, by skilful widening and planning of streets, from a wretched district, inhabited by the vilest poor. Just before the Prussian War, the Imperial finances having fallen into confusion, violent attacks were made on the great Prefect, who, it is certain, was not a person who looked to economy in his designs for public improvements, and the Emperor was forced by the clamor of his ministers and the newspapers, to ask his resignation. He declined to offer it, and was removed, just before the collapse of the Empire itself. He was afterwards elected Deputy from Corsica, but took no active part in political matters, and, on the expiration of his term, retired altogether to private life, busying himself by writing his autobiography. He was, notwithstanding his age, still strong and active to the time of his death, and might have lived many years longer but for the depression which followed the recent death of his wife and daughter. Notwithstanding the immense expenditure of public money which he directed, he died poor, and if it had not been for his wife's income, he would have been absolutely destitute.

ASIA MINOR seems likely to be the next region to be vigorously attacked by the railway builders. Most civilized countries have already more railroads than they can support, while the uncivilized ones, such as the interior of Australia and Africa, present few attractions to merchants or tourists; but Asia Minor is a most beautiful and fertile district, producing in immense quantities articles, such as rugs, dried fruits, and many other things, which are exported to all parts of the world, while it supplies with more perishable products the great market of Constantinople. In addition to the local business with which it could furnish a system of railways, Asia Minor forms the terrestrial connecting link between Europe and Asia, and, over the routes which the railways will, for the most part, follow, thousands of richly-laden caravans have been annually passing since the days of the Trojan War. There is a saying that a railway will be profitable over any route where a stage-coach will earn its expenses, and, in view of the vast traffic which has for twenty-five centuries passed through Asia Minor in all directions, it is not wonderful that, since the movement has begun, new surveys have been following each other rapidly. At present, English companies are engaged in building lines inland from Smyrna, but important concessions have been granted to German companies, and two main lines have been surveyed, which, starting opposite Constantinople, will penetrate the very heart of Asiatic Turkey in two different directions. As at present laid out, these two lines will be united in one from Maida, nearly opposite Constantinople to Ekischehir, a town at the head of the valley of the Sangarius, or Sakaria River. Here they will divide, one line running easterly, through the ancient Phrygia, to Angora, the ancient Ancyra of the Galatians. From Angora, which is a mountain fortress in the range of the Asiatic Olympus, the line passes southeasterly to Kaisari, the ancient Cæsarea, in Cappadocia, under the shadow of the Mons Argæus, now the Arjish Dagh. The next important stopping-place, still in Cappadocia, is Malatia, the ancient Melitene, on the upper course of the Euphrates; and the line then crosses the Euphrates and runs a short distance to Diarbekr, the ancient Amida on the Tigris, another fortress of the Classical and Byzantine age. From Diarbekr the road follows the Tigris to Bagdad, and thence to Bassa, the Bassora of the Arabian Nights' Entertainments, on the Persian Gulf. The second line, parting from the first at Ekischehir, runs southerly, through Kutaya, the Classic Cotyæum to Afioum Karahissar, literally, the Black Opium Castle, a large city, in the very heart of the Phrygian mountains; thence, by Akschehir, to Konia, the ancient Iconium, for centuries the Moslem Capital. From Iconium, the line crosses the Taurus Mountains, following nearly Alexander's route, to Adana; and thence to Aintab, the ancient Antiochia-ad-Taurum, on a branch of the Euphrates. At this point the railway emerges into comparatively familiar ground, and passing through Aleppo and Damascus, will end either at Acre or Jaffa, probably the latter. A more interesting country than that which these two lines will traverse does not exist in the world. The northern part of Asia Minor, in which lies the route from Constantinople to the Persian Gulf, is believed to be inhabited by the descendants of the same people who lived there in the days of Homer. This country has been traversed by troop after troop of Persians, Greeks, Saracens and Turks, but their very defencelessness has preserved them, and no conqueror has thought it worth his while to exterminate them. Naturally, they have adapted themselves to the religion of their successive masters; and there are no more devoted followers of the Prophet than the posterity of the Christians of the Seven Churches; but their humble domestic arts and customs have probably been preserved nearly intact. The southern route is more closely identified with the Crusaders and their Saracen opponents, and nearly all the principal stations on the line are fortresses of the Seljuk sultan, and they have not been greatly changed since they were the centres of Saracen art and power.

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FRENCH ARCHITECTURE.[1] — I.

IN the fifth century, A. D., at the period when the Merovingian invasions passed the barrier of the Rhine and spread over our land, Gaul had accepted Roman rule. Her manners, institutions, architecture, everything had become Romanized; the process of assimilation had been rapid and thorough.

Then followed an era of violence, plunder and murder, during which it seemed as though every trace of the ancient civilization would disappear forever. Several centuries elapsed; the Carlovingian occupation made the yoke still heavier, and yet there was a foreshadowing of better days when, by the side of more orderly institutions, the arts might once more flourish.

In the tenth century, an awakening did, in fact, take place in the centre and south, in those provinces of ancient Gaul which had remained most unshackled; a sort of Renaissance began; it extended to the provinces of the north, which were under direct subjection to the Franks of Neustria and Austrasia. There it underwent modifications at the hands of a race, which was still barbarous, but which was preparing for new destinies, as soon as it should be touched by southern civilization.

A school of architecture soon sprang up there, full of vigor, originality and productiveness. Though inspired at the outset by the Romanesque Renaissance, it afterwards abandoned this lead and flowered out magnificently. For three centuries it flourished, then, after a final transformation, disappeared rapidly and forever, leaving no trace of its passage. Art immediately entered upon a directly opposite path, and no tradition of the former school survived; on the contrary, succeeding generations, yielding to the violent reaction which set in, disowned the past or viewed it with mere scorn.

It would be difficult to find in the history of architecture another example of an end so extraordinary, a disappearance so complete. Usually, the architecture of a people is co-existent with the people itself, following its destinies and moving slowly downward from its zenith, through a period of decadence often centuries in length. Certainly extraordinary circumstances must have been required to terminate a vigorous and fruitful art so summarily, and replace it at once by another in striking contrast to itself. What were these circumstances is the question which we propose to discuss here.

In fact, to put this query is to ask how the Roman and Gaulish civilization was superceded for a time by feudalism, and why the latter, in its turn, was overthrown by the monarchical organization of France. It is, likewise, to demand how the Gallo-Roman people, rendered powerless at first by the invasions of the petty tribes of the North, so recovered its energies as to participate in the grandest events of our history and finally became the French nation. In reality these various questions all revolve themselves into one, for the social institutions, manners and architecture of a nation are closely related to its ethnological beginnings and to one another; they are only different forms of the outward manifestation of the nation's soul.

It might seem strange that, in this sketch of French architecture, we should digress to such an extent as to attempt to indicate broadly the sources of the French race, and the development and successive transformations of French institutions and social conditions. The above preliminary remarks will serve as our excuse, if, indeed, the truth be recognized that the architectural achievement of a people does not constitute an isolated fact, that it is not like a meteor which appears, speeds through space, and disappears as a solitary existence; but that it is fixed by a thousand deep roots in the soil from which it has sprung, that is to say, in the very existence of the people itself.

[1] From the French of P. Planat, in Planat's "*Encyclopédie de l'Architecture et de la Construction.*"

I. — CIVIL SOCIETY FROM THE FIFTH TO THE TWELFTH CENTURY.

On the downfall of Roman supremacy in the West, two races, broadly speaking, confronted each other in what is now France: the Gallo-Romans, who were spread over the entire land; and the Franks, Germanic tribes, which arrived in successive invasions and sought to establish themselves, but were pushed farther and farther by new bands, until at last they occupied largely the regions north of the Loire and, to a certain extent, though always precariously, the country to the south of this stream.

When the Roman government retired, powerless before the invasions of the barbarian hordes, and finally abandoned Gaul to itself, the only bequests of the ancient civilization to the new which survived the general dissolution, were the municipal system and the religious institutions.

The barbarians brought with them nothing resembling a regular social condition, and nothing which enabled them to reconstruct the administrative plan of the conquered country.

However, as it is impossible for men to live in a state of complete isolation, even the barbarians necessarily possessed a more or less imperfect conception of a social state — a conception which might or might not be suited to take root definitively on Gaulish soil, and which they were destined to develop sooner or later. They did, in fact, found in the midst of the conquered population, though as it were outside of it, the régime which became feudalism.

Thus we find in Gaul at this time two totally dissimilar races: the one an ancient race, retaining from its former civilization a municipal organization and firmly fixed religious institutions; the other, not yet out of barbarism, but engaged in creating and organizing the feudal régime. Such are the heterogeneous and even hostile elements which the invasions had opposed to each other, and which were doomed to contend against each other until, after centuries of struggle, they should be fused into a national unity.

The Germanic tribes which successively invaded the different parts of Europe were originally composed of two classes of members: one, sedentary and supported by the toil of their *coloni* and slaves, remained at home, and were the ancestors of the present inhabitants of Germany; the others were grouped around a military chief and lived by constant expeditions abroad, which were often carried to distant lands and ended either in defeat or the final expatriation of the adventurers. Like the Saxons of olden times, the Goths and Burgundi, the Franks who conquered Gaul were warfaring bands, who gradually became settled inhabitants while preserving their own customs and traditions.

In the Germanic band no man was engaged except of his own will. In this we find an early expression of the character of absolute independence which is the distinctive mark of the Germanic races. "The warrior chose his chief and his companions, and undertook nothing except by an act of his own will. Besides, in the bosom of the warfaring band, the inequality was not great between the chiefs and their men; there was nothing more than the natural inequality of strength, skill or courage; an inequality which afterward becomes fruitful, and which produces sooner or later immense results, but which, at the outset of society, displays itself only within very narrow limits. Although the chief had the largest share of the booty, although he possessed more horses and more arms, he was not so superior in riches to his companions as to be able to dispose of them without their consent; each warrior entered the association with his strength and his courage, differing very little from the others, and at liberty to leave it whenever he pleased."[2]

Here, then, are the characteristic features of the society of the German warfaring band: no spirit of discipline; absolute and voluntary devotion to the person of the chief; complete individual independence; no necessity of a bond or political organization. As decisions had to be formed in common, since they were purely voluntary in all circumstances, the freemen

[2] Guizot. "*Histoire de la Civilization en Europe*" and "*Histoire de la Civilization en France.*" On the history of the formation of the French social polity the following authors should also be consulted; Augustin Thierry. "*Lettres sur l'Histoire de France*"; Mignet. *Etudes Historiques*" and to some extent Michelet, in his *Précis* rather than in his great *Histoire*. We shall draw constantly from these various sources. The passages cited in this chapter are quoted from them.

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were brought together in public assemblies; these were held frequently at the beginning of the invasion or invasions, but became more impracticable and far rarer when the conquerors, becoming proprietors, had scattered themselves over the land. Every one then lived in almost complete isolation, surrounded by only a few companions-in-arms, who followed his fortunes to the end.

To Gallo-Romans, this sort of existence would have seemed hard; it was quite natural to the Franks and was in entire harmony with their character. This taste, we might say passion, for solitary life, this desire to isolate by means of a wall or a moat one's domestic existence and hide it from the gaze of the world, constitutes one of the distinctive characteristics of the races derived from Germany. Do we not see it exemplified to-day, even after the lapse of centuries, among the Anglo-Saxons, for example?

On the other hand there was no more sociable being than the Gallo-Roman. In ancient times, social life was always sought in the open air, on the public square, in the circuses, the thermæ, the academies, in the agitation of philosophical converse or political discussions. A civilization thus conceived found an admirably well prepared soil on Gaulish territory: the Gauls, said Cæsar, were fighters and fine talkers. At the dawn of the new day, when a stronger hand interfered in their interminable quarrels of tribe with tribe, the Gauls immediately accepted a regular organization and a common administration. They entered the Roman armies, to which they furnished brave, faithful and well-disciplined cohorts. In imitation of Rome, thermæ and schools were established everywhere, whose reputation soon became world-wide. "The Romans frequented the Greek schools of Marseilles. The keen, intriguing Gauls of the south were destined to succeed both as fine talkers and as physicians, and above all as mimes; they gave to Rome her Roscius (who was the Talma of the period); they succeeded likewise in other lines. We will merely mention by name Trogus Pompeius, Petronius Arbiter, Varro Atacinus and Cornelius Gallus, the friend of Virgil. The first rhetorician at Rome was the Gaul, M. Antonius Gnipho; he prepared the way there for the two great orators of the time, Cæsar and Cicero. Under Tiberius, the Montani were in the foremost ranks among orators, both in respect to ease and true genius. Caligula, who prided himself upon his eloquence, counted as his friends the two eloquent Gauls, Valerius Asiaticus and Domitius Afer. The Gaul, Zenodorus sculptured the colossus of the Gaulish Mercury for the city of the Arverni; Nero, who revelled in the massive and the stupendous, summoned him to Rome to erect a statue of himself, one hundred and twenty feet high near the Forum." We find among the Gauls, poets like Antonius Primus, a native of Toulouse, and the friend of Martial; illustrious generals, like the Provençal Agricola. The chief glory of Gaul was, however, her claim to the pious Antoninus, father of Marcus Aurelius; he was descended from a family of Nîmes.

It is easy to imagine with what facility and earnestness this people of artists, orators, poets, rhetoricians, physicians and soldiers adapted themselves to the ancient civilization, and with what zeal they adopted the graceful, polished and frank manners of the Roman world.

The ideal deeply rooted in the heart of the peoples of the north is, as we have seen, independent and solitary existence; to those of Gallo-Roman stock, it is sociability. These are constitutional characteristics which even centuries could alter only superficially, and the recognition of which may serve the historian as a sort of reagent. Wherever, in the various phases of our history, the first characteristic is the one most impressed upon society, it may be assumed that the Frankish races have the preponderance. When sociability sets its stamp on manners and customs it may be as unerringly inferred that the predominance is once more with the Gallo-Roman peoples.

Let us see, now, with what institutions Gaul had been endowed.

The Gallo-Roman population was, in a general way, divided into four classes; senators, *curiales*, the people, properly so-called, and the slaves.

The first were the descendants of the great Gaulish families, certain members of which had very probably been called to the Roman Senate; the *curiales* were landed proprietors in easy circumstances, members of the municipal body or *curia* of their own city; the people comprised petty landholders, small trades people and free artisans; these last were grouped in trade corporations, the origin of which goes back far beyond the Middle Ages, although this fact has often been disputed. As for the slaves, they were variously ranked, their grade depending upon whether they worked in the cities or fields, and upon the nature of the engagements by which they were bound. Their condition was often far less cruel than the general designation of slaves would suggest; some were regular rent-paying farmers; others were *métayers*, that is they cultivated the ground in consideration of receiving half the produce; some were almost free workmen; some farm-hands working for wages.

Such were the social classes; the government was in the hands of the imperial court at Rome. Under the superior direction of a prætorian prefect residing at Trèves, Gaul, properly so-called, was administered by a vice-prefect, who was placed over its seventeen provinces. The latter were specifically governed by *consulares* or by presidents.

These imperial officers were charged with the collection of the taxes and the administration of the public domains, the direction of the imperial posts, and the levying of troops for the army; they, moreover, had civil and criminal jurisdiction (almost exclusively). The analogy existing between their functions and those of our old provincial governors is evident. A magistrate, the *defensor* elected by the *curia* or municipal body, represented the popular interests before the imperial authorities and was charged with their defense; he exercised in such matters the jurisdiction in the first instance.

Under orders of these officers, each special department was administered by functionaries whose duties and powers were carefully defined; collectors and receivers of taxes, directors of public works and civil constructions; commissaries of army supplies, chiefs of the police and gendarmery; notaries, registrars and so forth, all of whom had at command an entire force of clerks and agents, just as in modern times.

It was, as we see, a very complete and rigorously officered organization, a cleverly adjusted machine, which would bear comparison in more than one respect with the governmental mechanism of some of the best organized peoples of recent times. The incessant warfare waged among themselves by the Gaulish tribes in early days, and the despotism exercised by the proconsuls during the period of military occupation had, then, both been superseded by an orderly regularity, which had made it possible for the country to adapt itself at once to Roman civilization. The Gauls thus enjoyed a period of true prosperity and of progress in the manners and intellectual training of the different tribes. Their moral education also gained therein, by the introduction of the law, that is to say, of the written law, unchangeable and equal for all, which was substituted for the daily interpretations of an equity which might be swayed by the chance of circumstances, interests and influences.

Public enterprises, commerce, fortune and general comfort developed rapidly; Roman occupation, and we may also say, Roman colonization, speedily introduced very tolerable forms; the Gauls were not enslaved; they were not reduced to the rank of a conquered race, nor were they despised as an inferior people; a number of Gauls, belonging to families of local influence, were called to Rome, played there an important rôle, and were admitted to the most valued honors of the Empire; there were Gaulish emperors. Such were the natural tendencies of the national spirit that there were always Gaulish troops at Rome, esteemed and courted for their bravery and fidelity, as there were literary men, lawyers and philosophers, numbered among the most illustrious of their kind.

Such were the advantages of the Roman civilization, and this accounts for the fact that it has left an ineffaceable impress upon the French nation. But when the Germans, who had up to that moment been held in check beyond the Rhine, began to force back the Gaulish and Roman troops which defended the frontiers, signs of decadence had already appeared. Rome had no longer anything to offer to the conquered provinces in compensation for that portion of their independence which they had been asked to sacrifice for the establishment of imperial unity. In default of a common origin, the peoples united under one rule, must needs at least have a common interest, namely, that of defence. Now, Rome had so extended her frontiers that she was threatened on all sides by barbarous, warlike and turbulent hordes; it was impossible to defend her territory on all the exposed points, and she therefore employed the forces of the Empire to fight the nearest enemy, and left the distant provinces to take care of themselves. While all the time drawing off armies from them to defend herself, while continuing to recruit her own troops from the vigorous and soldierly

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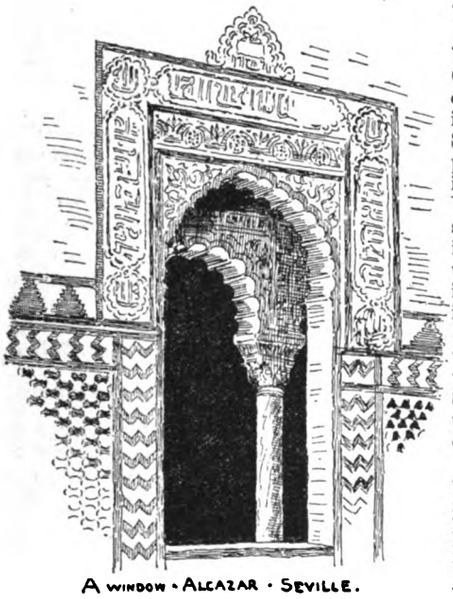
youth of the land, Rome withdrew the Roman forces from the frontiers and thus delivered the disarmed country as a prey to the invaders.

The government, with its complicated hierarchical system, still existed; but its functions were now mainly confined to securing the major part of the financial resources of the country, in order to bear them to Rome; this fresh cause of enfeeblement joined to the first, led to the surrender of Gaul in a defenceless state to the barbarians. There was nothing left but a sort of abstract organization, a skeleton hierarchy; the local aristocracy had long been stripped of all influence in the country; many of its members had emigrated to Rome; those who remained at home had been subordinated to Roman functionaries and were no longer the natural chiefs of the nation; the *curiales* were destitute of authority and had no responsibility except to gather in the contributions for the imperial government; their burdens were looked upon as a scourge, which every one sought to escape, and they had to be imposed by force; as for the people, they had long since lost all sentiment of solidarity; the Gaulish nation had ceased to exist when Gaul became a mere province of Rome, deprived of all her separate interests and resources and held like a satellite to the Roman destinies.

[To be continued.]

A RUN THROUGH SPAIN.[1]—IX.

THE HOUSE OF FIGARO.



A WINDOW · ALCAZAR · SEVILLE.

IT is well that one visits Seville before going to Granada, because one expects Moorish work as he goes South and is disappointed at not finding more of it. When, therefore, he sees such a mass of it as the Alcazar or the House of Pilate in Seville, the sight is most entrancing. But when he afterward sees Granada, the remembrance of Seville fades from the memory and becomes as a shadow.

Like a fortress wall rises the Alcazar, and one would hardly suppose so much of interest lay behind such plain walls.

It was a terribly hot day and the sun seemed as if it had engaged itself to stew and frizzle every person who appeared in the great square opposite the Cathedral. The only one who seemed at all oblivious to the heat was a little old fellow, wrinkled and twisted in form, but with a bright face, and who was selling "cooling drink," consisting mainly of syrups and water, the favorite drink of every Spaniard, in lieu of wine.

We entered the deserted square, and appeared at the little office for a ticket of admission.

"Americans?" and the little man smiled. "Ah, *Señor*, 'tis a far country."

"Yes," I replied, "therefore as we have come so far, condescend to allow us to loiter in the grand old place and sketch."

"It is granted," replied he, with the customary Spanish politeness.

So we approached the wonderful palace which is identified with the life of that cruel monarch Pedro, who reigned during the middle of the fourteenth century, and whose deeds were marked by a trail of blood, which, the guide assures you, it is impossible to erase.

We have seen nothing like it thus far, and as the great door swings on its hinges and we are admitted into the first of the series of rooms, the scene is a veritable kaleidoscopic creation of an Arabian Night's dream, and one can almost expect to see an Aladdin glide through the courts with his golden lamp, in search of something which his heart desires. But if we could have looked back to the old Moorish reign, we should have beheld a strange sight indeed. The Spanish youth courts his sweetheart in good earnest from before the iron guards of her window, the Italian courteously asks permission of the master to press his suit, the American goes about it as he pleases, the Sultan orders his mistress to his harem, while the old Moorish, sovereign was very particular; the number must be an even hundred and the conditions must be fifty rich girls and fifty poor girls; whether good-looking or otherwise, I do not know. At any rate, all the young ladies who answered to the call were summoned into the court and passed in review, and I can imagine the old nabob pointing out his finger and remarking, "you, and you, and you," and so on until he had procured his requisite number.

The glorious Hall of the Ambassadors with its *naranja* ceiling comes next, and it is a marvel of hanging lace-like ornament in gold and color, which runs into the wall-surface of raised ornamentation and glowing tile-work. Red, blue and gold, predominate everywhere, and one can imagine how soft must have been the effect at eventide, when the beautiful old hanging-lamps shone forth with their soft lustre. Wherever there are columns they are of alabaster, if I mistake not, at least they look almost like polished ivory.

And with all this beauty surrounding him lived the old Don Pedro, completing his palace after many years of labor and then staining its beauty by the blood of those whose acts displeased him.

"And what kind of wages do you suppose he paid his workmen?" asked our guide.

We could not guess of course, and were rather surprised at his very suggestive motion as he drew his finger across his windpipe and remarked that "Pedro sent them home with their heads cut off, after they had completed the work."

Well, well, what a horrible fellow he was to be sure; but what a delightfully simple method of settling one's accounts; no money required, no grumbling about the exact amount and no strikes.

"Pedro was a strange man," he went on, "and he liked nothing better than the adventures of midnight rambles, disguised as a lover. The story is told of his amours with a lovely maiden whom he found with another lover at her side one night, and with kingly grace stabbed him to the death. Then he ordered his alcalde to find the murderer, or lose his own head. The frightened alcalde found out who did the deed, made a puppet of the king and in due time presented it to him, with the proclamation, 'there is the man.'"

"What a capital idea," we said.

"Yes, *Señor*," he went on, "and to show the natural sagacity of the king, hear the sequel. Pedro could not very well kill his own alcalde, neither did he deem it a pleasant proceeding to cut his own head off, so he split the difference and hung the puppet with due solemnity and went on his way rejoicing."

Admirable method, was it not?

But to continue. Charles V found infinite pleasure in this old palace, but his pursuits were of a different nature and are seen in the beauties of the garden at the rear of the palace. At the entrance is a large font in which Charles V fished to his heart's content and if you to-day throw in a few crumbs, hundreds of little golden-backed fish spring up and make the water a sparkling pool. All around are gardens of orange trees laden with rich yellow fruit, large date palms, huge bunches of bananas and everywhere the curious hedges of myrtle which are filled in with tropical foliage. Turning back, one may pass under the buildings and see the huge foundations of dungeons and the subterranean bath which was made for the cruel Maria, mistress of Pedro. What strange stories could these passages tell if they could speak: stories of dark deeds, of murders, the sound of which was entirely hidden from the ear of mankind and in which the cruel king revelled!

While deep in the contemplation of the character of this fearful wretch and emerging from the deep shadows of the arches, we walked down the garden paths and could not help contrasting the two monarchs Pedro and Charles. Suddenly we seemed enveloped in a spray of water which caused us to jump and run, pell-mell. But the little jets followed on all sides, and seemed to spring from the very ground we trod, like a veritable sprinkling-bath. I suppose every one gets the same wetting. It is one of the jokes of the old king. You drop a nickle in the slot and see the fountain play. That is, figuratively speaking; an examination shows the guide's laughing face at the end of the garden and a pavement full of little pin-holes through which the water can be turned at will.

"Aye, verily," laughs the guide, "our King Charles was quite a joker in his way."

But the sun of Spain is warm and soon dries off the spray.

One can walk through the living-rooms of this wonderful palace and see much of the life of the Moorish kings. The walls are covered with the most intricate ornamentation of tiles, mosaics and sculpture. The courts are surrounded by beautiful columnated arches, whose delicate ornamentation seems like lace-work and the

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dreamy atmosphere dulls the senses and fills the imagination with the images of past ages. And if one is of a poetical turn of mind he may take almost any room or tower and weave around it a story full of love and intrigue such as any novelist might revel in. Beautiful sultanas would undoubtedly peer down from the arched balconies and bewitch us with their sparkling black eyes; and cannot one fancy Maria Padilla and her daily life in this network of lace and gold? Was she as beautiful as poetry and romance would have us believe, and did the old Pedro treat her so disdainfully after winning her youthful heart? How could it have been thus, and what an old wretch he must have been, anyway! Thus does fancy rush to our aid as we walk slowly through her deserted gardens and halls.

When we first entered Spain, I said to myself: Now it will be possible to find such tobacco as would have made the mind of Sydney Smith wild with envy. The mistake was very quickly discovered; but still, desiring to see the manner of persons who concocted such vile weeds and having always heard that the Andalusian damsels were such as might delight the eye of an artist, we spent an hour at the immense Fabrica de Tobacos with its twenty-eight *patios* and its corps of five thousand girls. If I remember aright, one crosses an old bridge spanning a moat and enters at last a building that might once have been a palace. A moat for protection, thought we? "Ah, no," answers the matron, "you are at liberty to run away with any beauty whom you chose to pick out. But they might possibly give you a great deal of trouble, those black-eyed damsels." "The moat is to prevent smuggling out tobacco," she adds.

I have heard people rave over the beauty of these girls, but I could not join in with them. The heat is oppressive, the odor is terrible, the girls have removed every article of clothing possible except their veils of modesty, which are very thin at best, and they sit at their tables with voluptuous abandon hard to find in any other place. A few of them are old women, some married who bring with them their babies whom they rock alternately with rolling their cigars.

I think I shall not enjoy a cigar this evening, I soliloquize, for the scene is not reassuring. Cigarettes are better here.

The roguish-looking faces glance up as we pass, a set of beautiful teeth gleam as they pass a joke about the Americans, and one can never swear that he did not see many a sly wink, which gave every indication of deviltries innumerable. One is not impressed with their modesty at least, and I cannot think that their purity was equal even to their good looks.

Our companion, who was well up in Spanish small-talk, kept up a running fire, which they seemed to enjoy, and as their day's work was almost up we saw them pass out by the hundred.

"Ah, *Señor*, a *pesata* for a dance," they cried!

"What! you would dance in the street?"

"Why not, is it a bargain?" they cried, as they drew up their skirts displaying very dirty ankles, and began a fandando with a twist of the body.

"Enough, enough, *Señorita*," for a dozen had started to dance, and would have danced us pocket poor in half a minute.

Seville is not the purest city of Spain, and these poor girls know little of good morals. A student of human nature would go into an elaborate treatise on the cause of their evils, the voluptuous influence of the climate, and the herding together of these thousands, where the tide of morality is constantly on the ebb, and where the men seem to have nothing to do but to allow their evil passions full play. Look not, then, too hardly on their faults, but rather be thankful that we are not placed in such a country and amongst such surroundings.

You ask why the youth of Spain do not work as in our country? Ask them and they will shrug their shoulders and ask what there is to do. Industries are well-nigh dead, business is confined to the few who cater to the traveller, and the hot blood of the Spaniards leads them naturally to a life of pleasure rather than of work. How they all live, Heaven only knows, we could never exactly work it out ourselves.

On returning home one must not forget the Barber of Seville! Poor Figaro, he gets much more attention being dead than he probably ever got when alive. His house is pointed out, but be sure you take into your gaze at least six houses, so you may be sure to have seen the house. What a pity he could not have found the elixir of life so that he might have enriched himself by the shekels of a host of people who walk down the Calle de Francos, stop opposite the small door, look in their guide-books with delicate earnestness, look again, sigh, expect to see "tonsorial artist" over the lintel, and go away with the pleasant assurance that they have seen the home of the famed Figaro.

An incident at the hotel goes to show the relations existing between master and servant in Spain. I had bought a guitar, and coming out from dinner into the beautiful *patio* spoke to one of the attendants asking if he played the instrument.

"Oh yes, *Señor*," he replied, with pardonable pride, "every Spaniard plays the guitar."

So he sat down and quickly tuning it, ran his fingers over the strings in a peculiar minor key, and gradually swayed backwards and forwards to the swinging melody. Hardly had he commenced, when all the attendants, the master of the house and his family gathered around, shouting bravo, bravo, as they chimed in and sang a lot of Spanish melodies. Then they started a dance, and inside of ten minutes the owner of the house was pirouetting up and down with his servants, laughing and shouting and imitating the movements of the castanets. And this continued for a half-hour as we smoked our cigarettes and sipped our coffee.

"Ah, what a beautiful instrument," sighed the attendant, "but I cannot stay longer as I must hurry in to wash my dishes," and in a moment he was elbow deep in soap-suds.

Fancy it, from music to soap-suds!

A ludicrous incident occurred in Seville when I attempted to take a bath. That the Spaniards practically never bathe must be a fact.

OUR PATIO SEVILLE

Although one of the noted things about the Moorish houses was the attention paid to the baths, the Spanish houses are destitute of such luxury. I asked the boy-of-all-work where the bath-room was located.

"The bath-room, *Señor*, there is none!"

"Well, what do you do?" I asked.

"Why, we never bathe, *Señor*."

I looked at him more closely and concluded that he had spoken the truth. His outer habiliments were washed once a month or so, himself never.

Then I tackled my waiter at the table, asking him if there wasn't any place in the house where I could get under water.

"No *Señor*," he answered, "not here, but you may go down to the river and take a plunge at night."

Then I asked the little fellow who put the shine upon our shoes if he couldn't help me out. But he said that he bathed in the fountain in the court, very early, before people were up.

Thank Heaven, I thought, the boot-black bathes, and I am bound to have a bath if I have to steal down in the night and wallow in the basin of the big fountain.

But I bethought myself of the landlord himself, and so went to find him.

"We will send up a pitcher of hot water," he said, "and that will be sufficient."

"Not much," I replied, "I want a bath, a regular soak, so to speak, and am bound to have it."

"When do you want it?" he asked.

"Right away," I said, "if you can give me one at all."

But he shook his head and said, "in an hour or two."

So I waited and waited, until at last a low rumbling noise was heard that seemed to permeate the whole building. This kept growing louder and louder, and was emphasized by a bump and a thud that made me wonder what it all meant. But after a few minutes I heard voices, and grunts and swear-words came thick and fast, as three men knocked at the door. I opened it and what do you suppose it was?

Upon my word, an iron tub six feet long, put on a little wheel-car, and steaming away with water hot enough to remove freckles bodily.

"Well, I swear," I exclaimed, "if you Spaniards are not the biggest fools that I have ever had the pleasure of meeting?"

They couldn't understand my compliment, but commenced wheeling this steaming tub into the room, and I doubt not echoing my own exclamation. But I got my bath anyway — after waiting an hour for the thing to cool down — and was probably the first bather that has had the courage to order such a thing for years.

There was once a man in Seville who bore the voluminous name of Fadrique de Rebera, a Marquis of Tarifa, and withal a godly man. At least he had never killed his man, did not carry a dirk in his belt, and was known to have made a pilgrimage to Jerusalem in 1520 and ever after referred to this trip when he was desirous of offsetting any little irregularities of his life. He had been greatly struck with the residence known as the House of Pilate, and on his return set about reproducing the house as he remembered it, and although his name has been forgotten, the house still remains and retains the name of the Casa de Pilatus. One enters under an archway of no pretentiousness whatever, passes through a yard, then through a loggia into the central *patio*, not unlike many Spanish houses, but in the style of the Moors, with interlaced windows, and several beautiful wrought-iron *rejas*. I sketched one of these grilles as we passed; it was surrounded by a mass of foliage and the good people had formed a bed of potted plants under the window. When we came to examine

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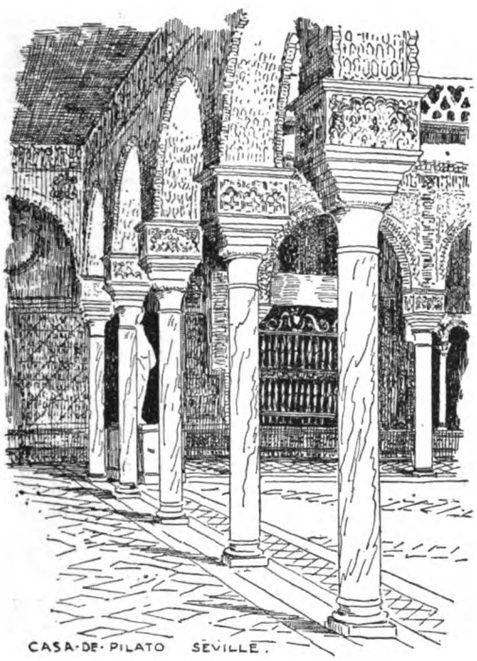
the grille it was found to be hand-wrought, the frieze with repoussé work, and the balusters with raised leaf-ornaments. I have tried to use this grille since this time, but iron-workers assure me that one grille will cost as much as the sum of one small building, and this would never do, of course.

If we remember the prototype we see that the fifteenth-century Moors copied in turn the Saracens. This *patio*, however, is large and grand, the walls under the columned colonnade being wainscoted with beautiful tile-work of mosaic of a peculiar iridescent color, dazzling in the sunlight, but charming in its arabesque designs. The fountain is here also, and in addition are four heroic statues in marble at the corners. There are several beautiful apartments with highly carved ceilings, but by far the most interesting part is the grand staircase and hall, which is a mass of mosaics, risers, strings and side complete, so that the effect is dazzling in the extreme when the sun shines through the windows, and is full of rich dead lustre when it does not shine. Altogether it is interesting but hardly practicable.


CASA·DE·PILATO SEVILLE.

Another interesting building in Seville is the Hospital of the Caridad, a retreat for poor worn-out humanity, and containing a goodly supply of this commodity.

"There are very few men who live to see themselves buried," remarked the custodian.

"To be sure," we replied, "such a coincidence is remarkable. Pray tell us about it."

It turned out thus: Don Miguel de Marrana was a perfect Don Juan and lived in the seventeenth century. He had been off on

Sevilla. Casa de Pilatos. 88

one of his terrible sprees one night, and upon starting home met the ghastly procession of the dead bearing their burden upon a couch surrounded by torches. Now this is not a remarkable sight in European cities, but the vision was very suggestive to the Don.

"Who is the corpse?" hiccupped he with tipsy solemnity.

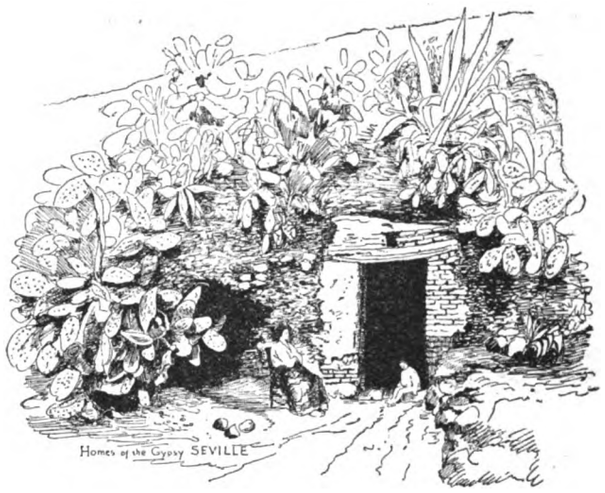
No answer being forthcoming, he staggered up to the bier and beheld — himself.

Now it must be admitted that such a coincidence was strange, and liable to give any man a shock. But so horrified was the Don that he accompanied his own corpse to the church, actually prayed over himself, and was picked up from the pavement senseless. But fortunately they buried the corpse instead of himself, and the Don staggered out of the church a changed man, gave up the evil of his ways, set himself to right the wrongs he had committed, and henceforth devoted himself and his money to errands of mercy. He, moreover, built the Hospital and endowed it forever. And now for the strangest part of the story. He died like other men, in good time, but so honest was he that he requested that he be buried in the Hospital and that the following epitaph be cut in the stone.

There it is to this day. "*Cenizas del peor hombre qui ha habido en el mundo.*" Here lies the most wicked man in the world.

It is here that the famous picture hangs, painted by Baldez, the master of Murillo, and from whom the latter master is said to have received his instructions as to realism in painting. It is called "Annihilation" and represents an archbishop's last resting-place, his staff broken, himself decomposing with so much truth that Murillo was wont to hold his nose as he passed it. We followed his example, since it was so horribly real.

A suburb of Seville well-known to every traveller is Triana, the home of the black-eyed gypsies, and therefore of bull-fighters, smugglers, dirt and immorality. To say therefore that it was well-known by every artist would be superfluous, as nearly all the Spanish models of Seville came from this place. The appearance of a stranger is the signal for calls from all quarters, and if he is in a carriage a


Homes of the Gypsy SEVILLE

dozen or more imps will climb all over the vehicle, while if he is afoot it is nearly as much as his life is worth to pass through the village.

"*Ah, Señor, por Dios,*" they cry with one voice.

"All right," we cried, "but for Heaven's sake climb out of the carriage and not cover us with vermin."

"*Ah, Señor, por Dios,*" they still cry, and clutch, and fight and laugh at each other.

"Here," I cried, "scatter!" And at the same time I threw a handful of copper coin away back of the carriage, which caused such a scampering that for a moment we were left. Then we stopped to see the fun.

"Now," I said, "dance, dance, a copper coin for each dance!"

Then up went the copper, and pell-mell went the whole crowd of girls and boys.

"Dance, dance, another copper for another dance!"

The old mother hags put forth their favorites, laughed and shook their castanets, and in five minutes not one mother's son of them, or daughter either for that matter, but was dancing their very best, while the coppers flew up at every interval to be scrambled for. But this thing couldn't last long, and for fear they would actually jump out of their skins like a Chicago sand-fly, we threw another handful of coin and whipped our horses into a dead run.

Lest you think us improvident wretches to be thus throwing around money, it might be well to remark that a whole handful of the coin was worth less than a five-cent piece.

Lovers of ancient history recognize the names of Trajan, Hadrian and Theodosius, but very few are aware of the fact that Seville boasts of their birthplace, in an adjacent spot known as Italica, and easily reached. The trip, too, is not devoid of interest, since the end of the route brings one to a dirty little village where may be seen mud huts actually built upon the ruins of ancient palaces; and carries one to the ruins of the old amphitheatre, the scene of many an ancient conflict. Huge fig and cactus trees now embower the walls in a mass of beautiful foliage, and an interesting underground passage leads directly to the centre of the arena.

Here are the pens for the wild beasts, there is the spring at which the gladiators drank their fill when heated with the sports, and there are the old goals from which they ran.

Ah, it is the place for a poet!

The huge walls with the seats rise on all sides, and it is possible

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to picture them crowded with a tumultuous crowd shouting and applauding. Then come the hoarse cries of the gladiators as they fight for supremacy, or the groans of some dying wretch who bites the dust and is borne away in the agony of death. Those days have past and will come no more to Italica. Even the river which swept past her very walls has sought a new channel, her kings are no more, her palaces have fallen, and the dust of ages that covers her yet speaks eloquently of what she was. 'Twas thus with Rome herself, and Italica was but one of her children.

On the bank of the river stands an old brick tower which arrests the attention, and which from its color is called the Terre del Oro. As a child I read of Bluebeard, of his beautiful wives and his curious method of working out his own divorces. Here was its prototype. Old Pedro used to amuse himself by confining his wives here, as well as his treasures, and many little "removals" were here perpetrated in an artistic manner. It is now an office of some kind, and is very commonplace, but like almost every building in Seville would tell an interesting story if it could.

One can spend days around Seville and pick up many bits for his sketch-book. The *patios*, many of them very large, are used as wash-places, and I remember one, the Corral del Conde, where we entered and found a huge stone fountain basin in the centre. Around this were a dozen women in picturesque costume, washed unmentionables of all sorts, and then hung them up on lines stretched from balcony to balcony. Bisected, quatrosected and vivisected garments made picturesque foregrounds, while buttons flew off on all sides as the women pounded and rubbed those ornaments off. Heaven help the remnants, we exclaimed as we glanced down at our garments which were needing some such treatment after a month or so of wear.

On all sides are seen the little belfries hung with bells, that were undoubtedly used to call the hungry man to his humble meal. Tiles are used oftentimes in the simplest of forms and I noted many a lot that I would have given much to possess, and indeed two such came into our possession in exchange for a *pesata*.

As we go towards the cathedral we pass a noted building, La Casa del Ayantamiento, which is the corporation house, and built in 1564. The exterior is an exquisite example of Spanish plateresque, as delicate almost as the work of a silversmith. I could not help getting a little photograph of its façade, and have often wished to use it in some façade, but when the expense is considered it is necessary to cut out the very character that makes it beautiful.

Of course the little churches in this beautiful city may be counted by scores, each one possessing a bit of interest. San Marcos is a delightful piece of *meedejar* architecture, whose portal is exquisite and whose tower is the highest in Seville. Indeed, it is said that Cervantes used to ascend it in order to look down with loving eyes upon the house of his beloved Isabel. My companion remarked that any American lover fired with such a sixteenth-century frenzy of love would have entered boldly and pressed his claim rather than simply look down from a tower. I think that was a true saying, but very hard-hearted upon poor Cervantes, who may have been slightly bashful.

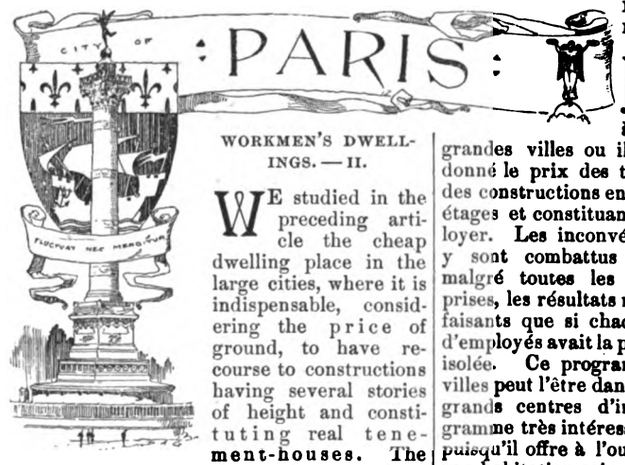
Then there is San Pedro, an excellent example of Moorish architecture with its *artesonardo* roof; it was here that Velazquez was baptised. Santa Catalina with its magnificent nave roof, and Moorish vaulted ceilings of one of its large chapels. San Clemente with a splendid *alerce* roof, and Santa Paula which shows how tiles may be introduced with good effect, forming a style peculiar to Spain and known as *azuelejo*. There is also a little church near Italica, where the doorway is made up of a combination of tile and colored bricks. It is known as San Isidoro, and is worth a visit. Lastly, Santa Isabel will furnish a good example of Spanish Renaissance in its large doorway. Age has worked wonders in coloring, where the tile and brickwork have become mossy and stain covered; nothing but a water-color can do it justice.

A hundred other places of interest might be named in this charming old city, but one has at last to move on. It was at such a time that our good host shook our hand cordially, wished us God speed and remarked, "You will come again, *Señor*, oh, yes, you will surely come again."

I cannot tell. I hope his prediction may prove true some time, for one could spend a year in Seville and yet find something of interest.

C. A. Rich.

(To be continued.)



WORKMEN'S DWELLINGS. — II.

We studied in the preceding article the cheap dwelling place in the large cities, where it is indispensable, considering the price of ground, to have recourse to constructions having several stories of height and constituting real tenement-houses. The inconveniences of agglomeration are there contended with as capably as possible; but in spite of all the hygienic precaution which can be taken, the results cannot be as satisfactory as if each family of employés had its own little private and isolated dwelling. This programme, which cannot be realized in cities, can be realized in the suburbs and round about the grand centres of industry. It is a very interesting problem from a social point of view, since it offers to the workman the possibility of having a healthy dwelling, where he is really at home, and which can finally be acquired by himself. Already, before the founding of the Société Française des Habitations à bon Marché, this idea had inspired M. Cacheux to build on some land belonging to him, in the neighborhood of Paris or in its faubourgs, groups of cheap houses, completely isolated or in pairs, separated only by a party-wall. These houses have either a simple ground-floor consisting of three or four rooms, with a water-closet, or a ground-floor and first story. Their cost varies from 3,000 to 12,000 francs, including the fence, but not the ground. The most costly, which are really little country houses, contain on the ground-floor, two sitting-rooms, a dining-room, kitchen and water-closet. Upon the first-floor four chambers, two dressing-rooms, and in the attic a servant's chamber. This is the luxurious

LES LOGEMENTS A BON MARCHÉ EN FRANCE. — II.

Nous avons étudié, dans un précédent article, les habitations à bon marché dans les grandes villes ou il est indispensable, étant donné le prix des terrains, d'avoir recours à des constructions en hauteur prenant plusieurs étages et constituant de véritables maisons à loyer. Les inconvénients de l'agglomération y sont combattus le plus possible; mais, malgré toutes les précautions hygiéniques prises, les résultats ne peuvent être aussi satisfaisants que si chaque famille d'ouvrièrs ou d'employés avait la petite maison particulière et isolée. Ce programme irréalisable dans les villes peut l'être dans les environs et autour des grands centres d'industrie. C'est un programme très intéressant au point de vue social, puisqu'il offre à l'ouvrier la possibilité d'avoir une habitation saine, où il est bien chez lui et qu'il peut même acquérir par la suite. Déjà, avant la fondation de la Société Française des Habitations à bon Marché, cette préoccupation avait inspiré à M. Cacheux la construction, sur des terrains lui appartenants autour de Paris ou dans les faubourgs, de groupes de maisons économiques, completement isolées ou réunies deux à deux et séparées par un mur de refend mitoyen. Ces maisons ont: soit un simple rez-de-chaussée comprenant trois ou quatre pièces avec water-closet, soit un rez-de-chaussée et un premier étage. Leurs prix varient de 3,000 à 12,000 francs, compris clôture, mais non le terrain. Les plus chéres, constituent de véritables petites maisons de campagne comprenant, au rez-de-chaussée: 2 salons, salle à manger, cuisine, water-closet; au 1er. étage: 4 chambres et 2 cabinets de toilette, et, sous les combles, une chambre de domestique. C'est le type luxueuse! Le locataire a la faculté de devenir acquéreur en payant pendant quinze ans, outre le loyer, qui est de cinq et demi du prix principal de vente, une somme annuelle équivalent à quatre et demi pour cent de ce prix. A l'expiration du bail, on fait alors un contrat de vente.

Pour acquérir un immeuble de 6,000 fr., par exemple, il y a à payer 200 fr. au moins, comptant.

BILLIGE WOHNUNGEN IN FRANKREICH. ZWEITER ARTIKEL.

In einem vorhergehenden Artikel haben wir die billigen Wohnungen in den grossen Städten besprochen, in denen es, angesichts des Preises der Bauplätze, geboten ist zu hohen Gebäuden von mehreren Stockwerken, also zu eigentlichen Miethcasernen, seine Zuflucht zu nehmen. Die Unannehmlichkeiten der Bevölkerungsüberhaüfung sind in denselben zwar nach Möglichkeit beseitigt, aber, trotz aller hygienischen Vorsichtsmassregeln, können die Resultate doch nicht so befriedigend sein, als wenn jede Arbeiteroder Beamtenfamilie ihr kleines eigenes und isolirtes Haüschen hätte. Dieses, in den Städten nicht zu verwirklichende Programm, ist nur in den Vorstädten und in der Umgebung der grossen industriellen Mittelpunkte erreichbar. Vom gesellschaftlichen Standpunkte aus betrachtet ist dieses Programm äusserst interessant, indem es dem Arbeiter eine gesunde Wohnung sichert, in der er für sich abgeschlossen ist, und die er sogar im Laufe der Zeit an sich bringen kann. Schon vor der Gründung der "Société Française des Habitations à Bon Marché," war Herr Cacheux, in Folge der Beschäftigung mit diesem Gedanken, darauf gekommen, auf ihm gehörigen Ländereien in der Umgebung und in den Vorstädten von Paris, Gruppen von Häusern zu bauen, welche entweder vollständig isolirt, oder je zwei und zwei zusammen gebaut und durch eine mittlere Trennungsmauer geschieden waren. Diese Häuser bestanden entweder nur aus einem Erdgeschoss mit drei oder vier Zimmern und einem Abtritt, oder aus einem Erdgechoss und einer Etage. Die Kosten variirten von 3,000 bis zu 12,000 Franken, einschliesslich der Umzäunung, aber nicht des Grund und Bodens. Die theuersten waren wirkliche Kleine Landhäuser, mit zwei Empfangszimmern, Speisezimmer, Küche und Abtritt im Erdgeschoss; vier Schlafzimmern und zwei Ankleidezimmern auf der ersten Etage, und einer Stube für die Magd unter dem Dach. Das ist der Luxustypus. Der Miether kann Käufer werden, indem er während fünfzehn Jahren, ausser dem Miethzins von fünf und ein halb Procent auf die Hauptkaufsumme, noch eine weitere jährliche Zahlung im Betrag von vier

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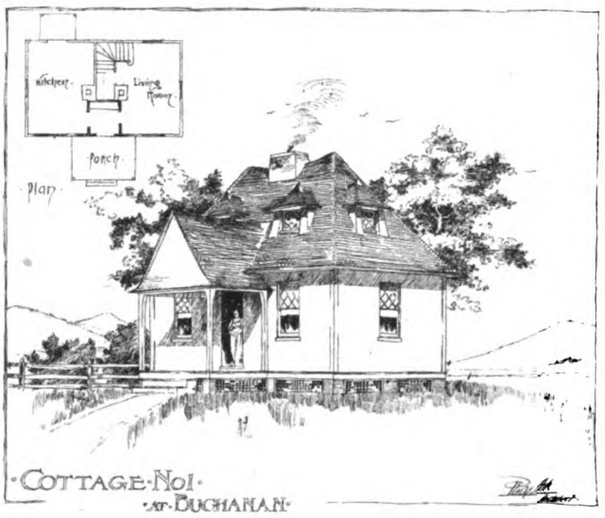

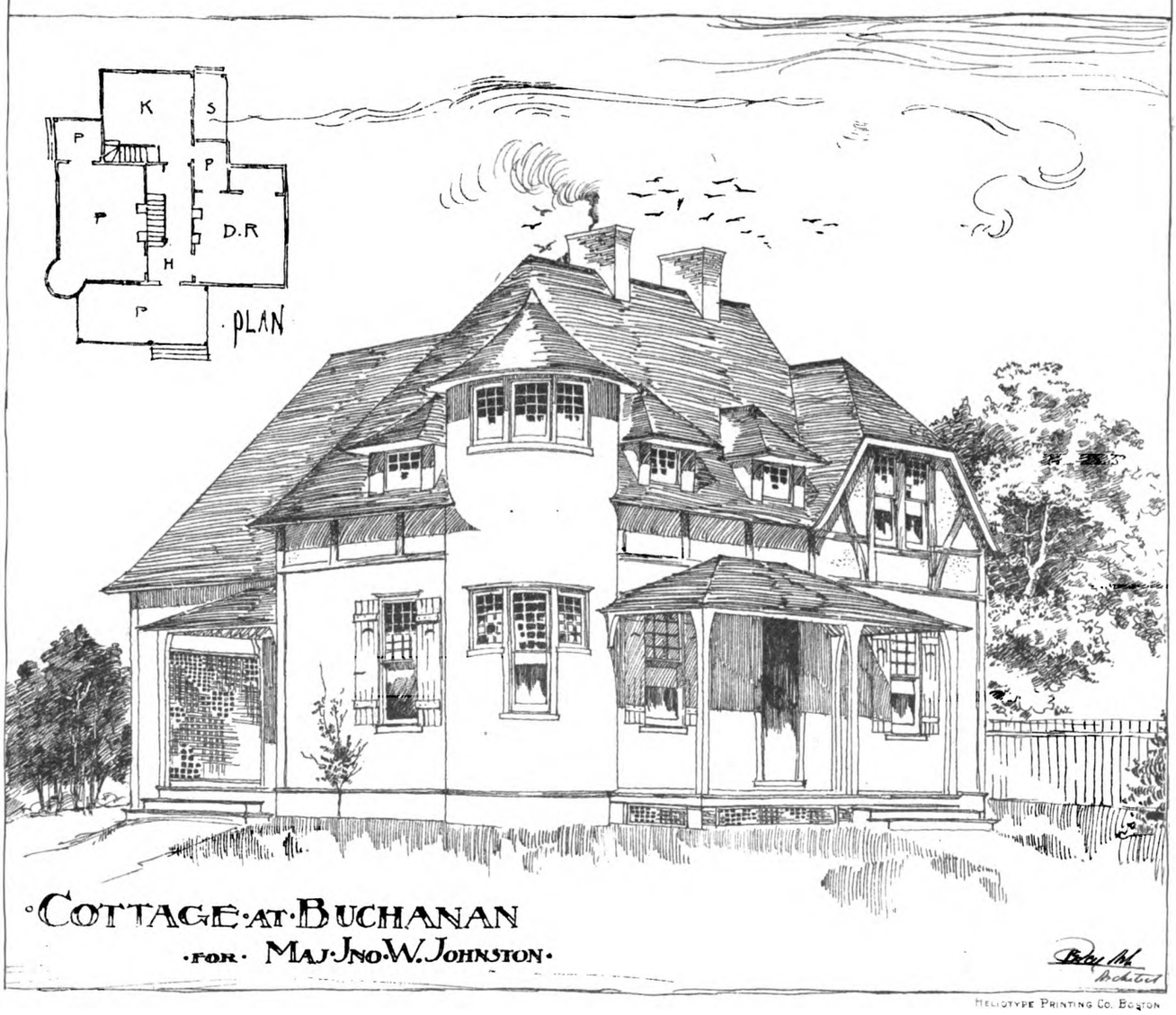

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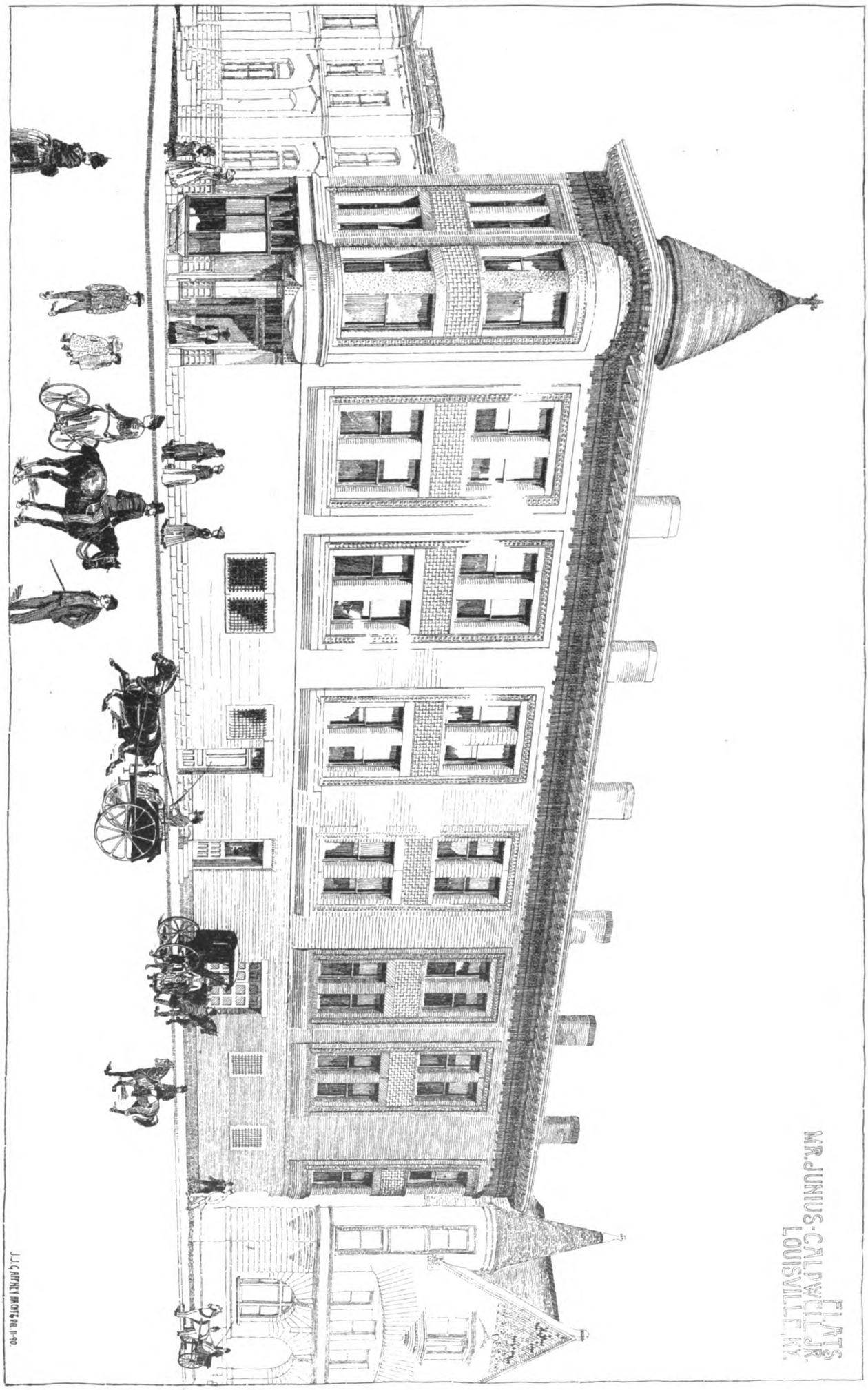

FLATS
MR. JUNIUS CALDWELL JR.
LOUISVILLE KY.

HELIOTYPE PRINTING CO BOSTON
J.J.CAFFREY PHOTO & PUB. 1890

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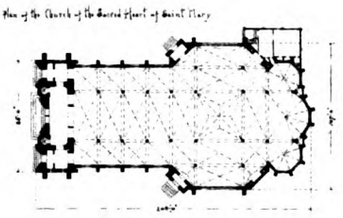
CHURCH OF THE SACRED HEART OF SAINT MARY
REV. D. H. KOLASINSKI + PASTOR + DETROIT, MICH.
SPIER & ROHNS - ARCHITECTS.
A. D. 1890



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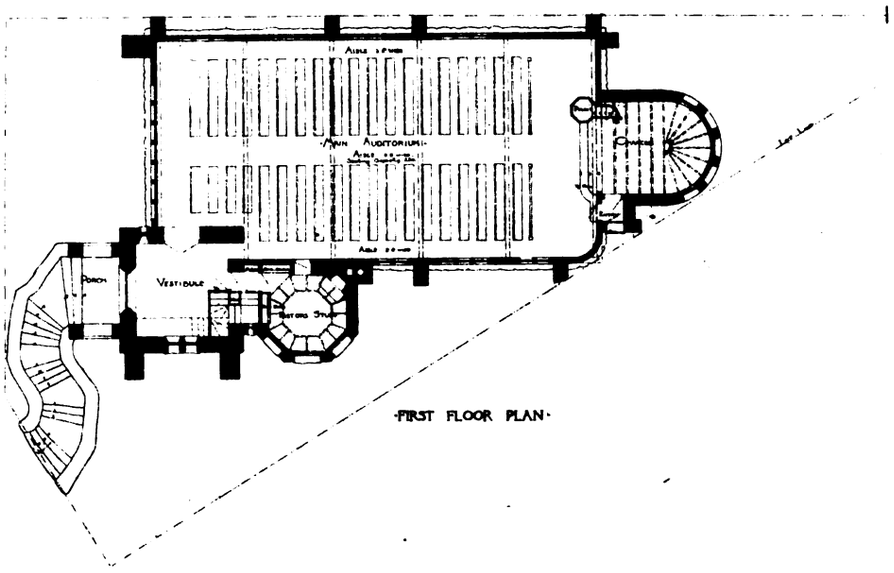

FIRST FLOOR PLAN.

STUDY FOR THE LITTLE STONE CHURCH AT THE FOOT OF THE HILL FOR THE BETHLEHEM PRESBYTERIAN SOCIETY · ST PAUL MINNESOTA · GILBERT & TAYLOR · ARCHITECTS ·

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BEACON STREET

Electric Car Lines

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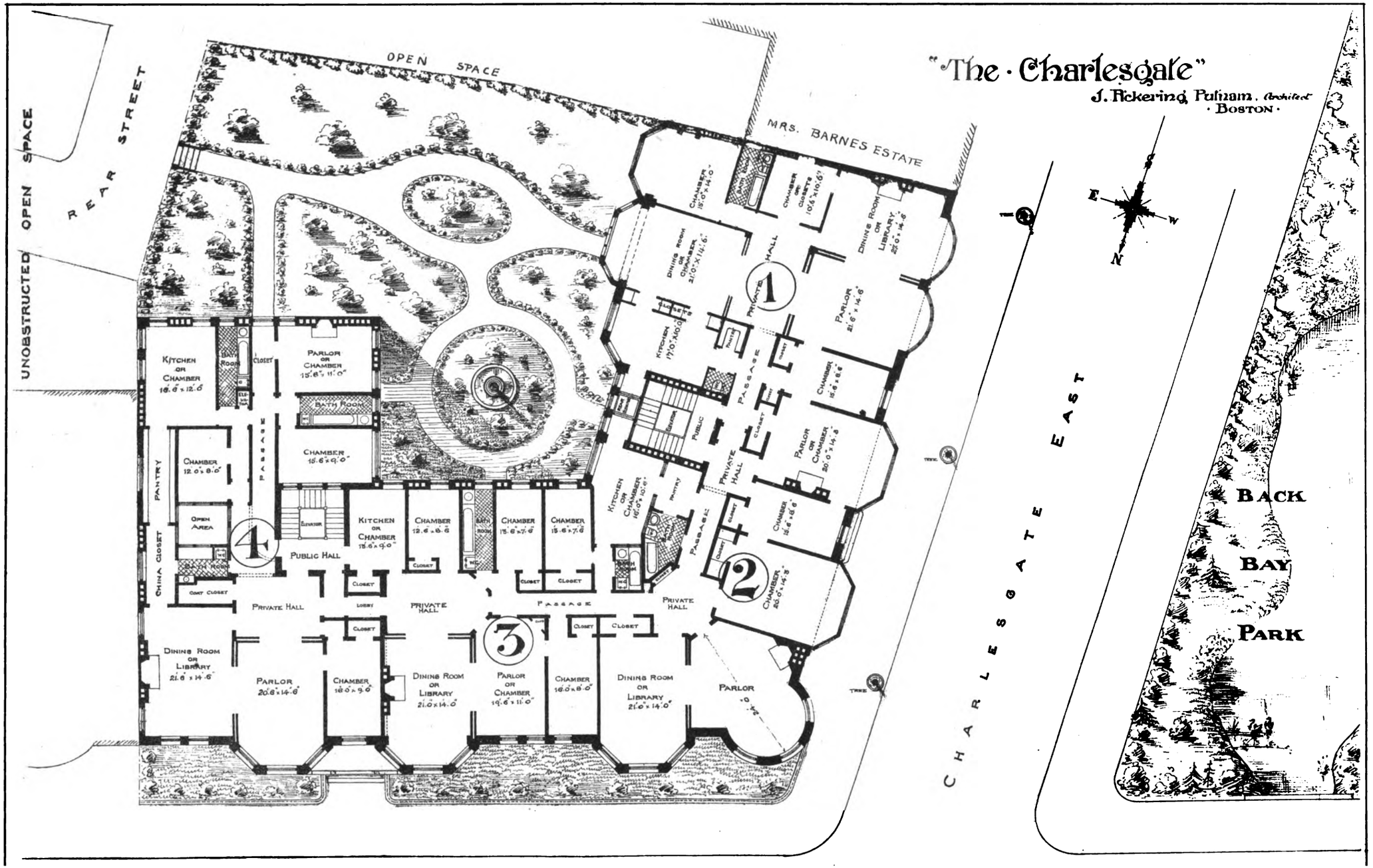

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type. The lessee has the right of becoming the owner by paying during fifteen years, in addition to the rent, which is 5½ per cent on the selling price, an annual sum equivalent to 4½ per cent of this price. At the expiration of the lease, the deed is delivered to him.

To acquire a property valued at 6,000 francs, for instance, there must be paid down 200 francs at least, leaving 5,800 francs. During fifteen years it will be necessary to pay an annual sum of 580 francs, which consists of 319 francs for rent and 261 francs for the sinking-fund. At the end of the lease the costs of sale, in order to perfect the contract, reach about 540 francs. Basing its actions always upon these same principles, and pursuing the same object, the Société Havraise des Cités Ouvrières has built, up to the present time, 117 houses in two groups, one of 77 and the other of 40. This society, formed in 1871, with a capital of 200,000 francs, received from the City of Havre a subsidy of 25,000 francs at the time of the building of the first group. To-day, out of the 117 houses, seventy houses have been entirely paid for.

We give below the plans of the houses in the group of forty, the price of which is divided as follows:

Cost of one house	3,050 Fr.
Outbuildings and fencing	650 "
Cellar	700 "
Land (120 metres at 5 francs)	600 "
Total	5,000 Fr.

These houses have a ground-floor and an upper story.

The Orleans Railroad has built for its employés, at Laqueuille, in Auvergne, houses, each containing two tenements. Each dwelling contains, as can be seen from the plans annexed, four rooms, with fireplaces, water-closet, cellar and storeroom. The house cost 13,600 francs, which makes the cost of each tenement 6,800 francs. Probably this cost will seem rather high, but these buildings, intended for its own employés, had to have a certain air of relative comfort. It would have been easy to keep the expense at a lower figure by employing less costly materials. The railroad company built three of these houses, and the rent paid by its employés is equal to one-tenth of their pay, conformably to the rule established by the company for all of its agents who are lodged in buildings belonging to it.

So we see that in France for several years attention has been turned in an active manner to the question of lodging workmen and minor employés. The new Société Française des Habitations à bon Marché proposes to continue and encourage the movement already begun.

It is with this object that it opened during the last summer, in July, 1890, a competition for cheap dwelling-houses to be erected at St. Denis, near Paris. The question was: to devise different types of lodging and small healthy houses of one or two stories (ground-floor and a first story) containing three or four rooms at most, with cellar and garden, all within an area of 100 square metres. These houses must be built upon a site at St. Denis having an area of 10,092 square metres. This competition, which closed November 15, 1890, drew together forty-eight designs, which were exhibited at the Hôtel de Ville. I do not know how better to give a description of the general appearance of this competition than by borrowing some extracts from the *Bulletin* published in July by the Société Française des Habitations à bon Marché. There were two important points to consider in judging this competition. First, the utilization of the ground and the grouping of the buildings. Second, the arrangements and the types of the isolated buildings.

It was necessary to examine under the first head the greater or less are a occupied by the buildings as designed, their height, their importance and their general disposition from the double point of view of general circulation and their success in

Reste 5,800 fr. On aura à verser pendant quinze ans une annuité de 580 fr.: comprenant 319 fr. pour le loyer et 261 fr. pour l'amortissement. A la fin du bail, les frais de vente pour réaliser le contrat s'élèvent à environ 540 fr.

Se basant toujours sur les mêmes principes et poursuivant le même but, la Société Havraise des Cités Ouvrières a construit, jusqu'à présent 117 maisons, en deux groupes de 77 et de 40 maisons. Cette société, constituée en 1871, au capital de 200,000 fr., reçut de la Ville du Hâvre une subvention de 28,000 fr., lors de la construction du premier groupe. Aujourd'hui, sur les 117 maisons, 70 sont entièrement payées. Nous donnont ci-joint la plan des maisons du groupe des 40, dont le prix se divise ainsi:

Prix de revient d'une maison	3,050 fr.
Dépendances et murs de clôtures	650 "
Etablissement d'une cave	700 "
Terrain : 120 m. à 5 fr	600 "
Total général	5,000 "

Ces maisons sont à un étage sur rez-de-chaussée.

La Compagnie des Chemins de Fer d'Orléans a construit à Laqueuille (en Auvergne) des maisons à deux logements pour ses employés. Chaque ménage possède, ainsi qu'on peut le voir sur les plans ci-joints, quatre pièces à feu, un cabinet d'aisances, un cellier et un grenier. La maison a coûté 13,600 fr., ce qui met à 6,800 fr. le prix de revient de chaque logement.

Ce prix paraitra peut-être un peu élevé; mais ces maisons, destinées à des employés, doivent présenter un certain confort relatif. On pourrait facilement arriver à une dépense plus faible en employant des matériaux moins couteux. La Compagnie d'Orleans a construit trois de ces maisons, et le loyer payé par les employés logés est egal au dixième de leur traitement, conformément à la règle établie par la compagnie pour tous les agents qui sont logés dans des bâtiments leur appartenant.

On voit donc que depuis plusieurs années, on se préoccupe, en France, d'une manière active, de la question du logement des ouvriers et petits employés. La Société Française des Habitations à bon Marché se propose de continuer et d'encourager le mouvement commencé.

C'est dans ce but qu'elle a ouvert l'été dernier (Juillet 1890) un concours pour l'étude d'Habitations à bon Marché à élever à Saint Denis, près Paris. Il s'agissait de trouver différents types de logements et de petites maisons salubres à un ou deux étages (rez-de-chaussée et premier étage) et contenant trois ou quatre pièces au plus, avec cave et jardin, le tout d'une contenance de 100 mètres carrés. Ces maisons devaient être construits sur un terrain sis à St. Denis, d'une superficie de 10,092 mq. Ce concours, qui fut clos le 15 Novembre, 1890, produisit l'envoi de 48 projets qui furent exposés à l'Hôtel de Ville. Nous ne saurions mieux rendre compte de la physionomie générale de ce concours qu'en empruntant quelques extraits au rapport du jury, publié dans le *Bulletin* de la Société Française des Habitation à bon Marché. "Deux points importants étaient à considérer dans le jugement de ce concours:

1er. L'utilisation du terrain et le groupement des constructions; 2me. Les aménagements et les types de maisons isolées.

Il fallait examiner dans la première de ces données la plus ou moins grande surface occupée par les constructions projetées, leur hauteur, leur importance et leur disposition au double point de vue de la circulation générale et de leurs rapprochements pour satisfaire aux conditions économiques et hygièniques. Une grave question s'imposait: celle de la maison à étages, qu'il serait préférable d'éviter au point de vue de l'hygiène sociale; mais que le prix du terrain et aussi des matériaux impose, au moins pour une partie des constructions, dans la région de Paris. Il y avait lieu

und ein halb Procent auf dieselbe Summe leistet. Nach Ablauf des Pachtcontracts wird ein Verkaufscontract gemacht.

Um z. B. eine Liegenschaft von 6,000 Franken zu erwerben, wird eine baare Anzahlung von 200 Franken gemacht, bleiben 5,800 Franken. Während fünfzehn Jahren hat man nun eine jährliche Zahlung von 580 Franken zu machen, einschliesslich 319 Franken für Miethe und 261 Franken zur Kapitalstilgung. Bei Ablauf des Pachtcontracts, belaufen sich die Spesen für Abschliessung des Verkaufscontracts auf ungefähr 540 Franken.

Auf denselben Principien fussend und dieselben Zwecke verfolgend, hat die "Société Havroise des Cités Ouvrières" bis jetzt 117 Häuser, in zwei Gruppen von je 77 und 40 Häusern, gebaut. Diese Gesellschaft, im Jahre 1871 mit einem Capital von 200,000 Franken gegründet, erhielt, zur Zeit als sie die erste Gruppe baute, von der Städt Havre eine Subvention von 25,000 Franken. Bis jetzt sind von den 117 Häusern 70 ganz bezahlt. Anbei geben wir den Plan der Häuser in der Gruppe von 40, deren Kosten sich folgendermassen stellen:

Kostenpreis eines Hauses	3,050 Fr.
Nebengebäude und Umfriedigungsmauren	650 "
Herstellung eines Kellers	700 "
Bauplatz, 120 m. zu 5 Franken	600 "
Summa	5,000 Fr.

Diese Häuser bestehen aus einer Etage über einem Erdgeschoss.

Die Eisenbahngesellschaft von Orleans hat in Laqueuille, in der Auvergne, Häuser mit je zwei Wohnungen für ihre Angestellten gebaut. Jedes Gelass hat, wie man das aus den beigegebenen Plänen erschen kann, vier heizbare Räume, einen Abtritt, einen Keller und einen Speicher. Jedes Haus kostet 13,600 Franken, so dass sich jede Wohnung auf 6,800 Franken stellt. Dieser Preis wird etwas hoch erscheinen; aber die betreffenden Häuser, für Angestellte bestimmt, müssen verhältnissmässig gewisse Bequemlichkeiten bieten. Es würde ein Leichtes sein, durch Anwendung weniger kostspieliger Materialien die Baukosten zu verringern. Die Orleanser Gesellschaft hat drei solcher Häuser gebaut, und die Miethe welche die darin wohnenden Angestellten zahlen, beträgt, nach der Regel welche für alle in den Häusern der Gesellschaft wohnenden Bediensteten festgestellt ist, ein Zehntel ihrer Besoldung.

Man sieht, dass man sich seit mehreren Jahren in Frankreich sehr lebhaft mit der Frage der Beschaffung von Wohnungen für Arbeiter und niedere Beamte beschäftigt. Die neue "Société Française des Habitations à Bon Marché" hat es sich zur Aufgabe gemacht die begonnene Bewegung fortzusetzen und zu ermuthigen. Zu diesem Zwecke hat sie letzten Sommer, im Juli 1890, eine Concurrenz eröffnet behufs Herstellung billiger Wohnungen in St. Denis, bei Paris. Es handelte sich darum verschiedene Typen festzustellen für gesunde Wohnungen und kleine Häuser von ein oder zwei Stockwerken (Erdgeschoss und erste Etage), mit höchstens drei oder vier Räumen, nebst Keller und Garten, von einem Gesammtflächeninhalt von 100 Quadratmeter. Diese Häuser sollten auf einem in St. Denis gelegenen Stück Grund von 10.091 Quadratmeter errichtet werden. Die Bewerbung, welche am 15 Nov. 1890 schloss, ergab die Einsendung von 48 Projecten, die im Stadthaus ausgestellt wurden. Wir wüssten den allgemeinen Character dieser Concurrenz nicht besser zu kennzeichnen, als indem wir dem Bericht der Jury, welcher in dem "*Bulletin* de la Société Française des Habitations à Bon Marché" veröffentlicht wurde, einige Auszüge entnehmen. Zwei wichtige Punkte waren es, welche die Preisrichter zu erwägen hatten: — 1, Die Vernutzung des Bodens und die Gruppirung der Häuser; 2, Die Zweckmässigkeit und die Typen der isolirten Häuser.

Unter dem ersten dieser Gesichtspunkte war zu bedenken die grössere oder geringere

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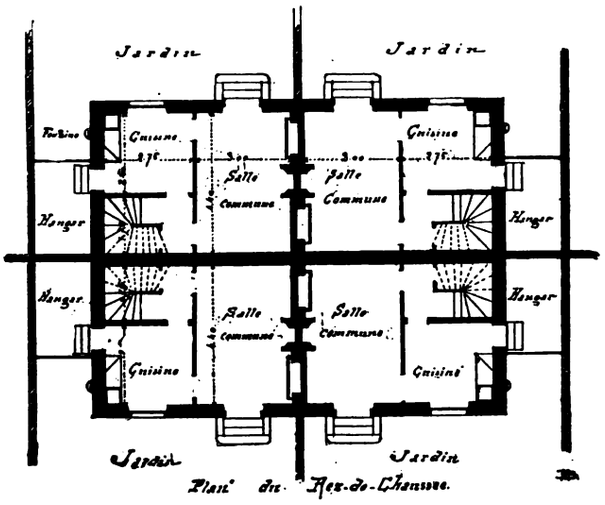
satisfying economical and hygienic conditions. A grave question demanded attention, namely, the matter of houses of several stories, which it would be desirable to avoid from the standpoint of social hygiene, but which the cost of land and also of materials make obligatory, at least for the greater part of buildings in the neighborhood of Paris. It was necessary to consider the position which these several-storied houses should hold in the general scheme rather than their internal arrangements, for experiments already made at Paris and elsewhere had fixed, at least for the present time, the opinion of all as to the best mode of dividing up buildings of this class. In the small houses, on the contrary, the arrangements can be varied in an infinity of ways.

Certain schemes allign the rows of the houses on the same interior passageway, or back them up against the bounding wall of the neighboring property. Others seek various groupings, sometimes quite original, and thus break the monotony of the general appearance by ingenious combinations of isolated houses, semi-detached houses, or blocks of four, thus recalling the type of the Mulhausen dwellings. And finally the gardens, ill-arranged and offering little chance for cultivation in some cases, acquire in others a real importance from the point of view of gardening, and become a resource which is not to be disdained, at the same time with their designing they furnish a happy element of picturesqueness.

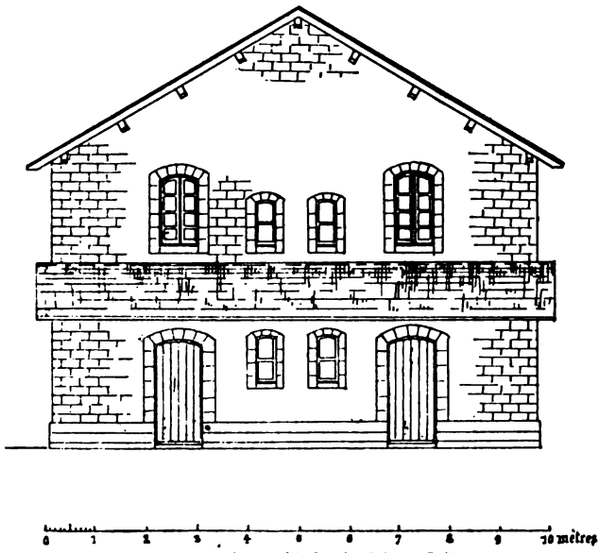
Another interesting question as to these cheap dwelling-houses is the relative importance given to one room which has a direct approach, and serves as a common sitting-room, sometimes as a small workshop, and always as a dining-room. From an economical de se prèoccuper plutôt de la position de ces maisons à étages, dans le plan d'ensemble, que de leurs dispositions intérieures, car les expériènces déjà faites à Paris et ailleurs ont fixé, au moins quant à présent, le jugement de tous sur le meilleur mode de répartition des locaux de ce genre. Dans les petites maisons, au contraire, les dispositions peuvent varier à l'infini.

Certains projets alignent des bandes de maisonnettes sur une même voie intérieure ou les rejettent le long des murs séparatifs des propriétés voisines; d'autres cherchent des groupements variés, parfois très originaux, et rompent ainsi la monotonie de l'ensemble par d'ingénieuses combinaisons de maisons isolées ou de maisons réunies par deux ou par quatre, rappelant ainsi le type Mulhousien; enfin les jardins, mal disposés et offrant peu de ressources à la culture chez les uns, atteignent chez d'autres une importance réelle au point de vue du jardinage, et deviennent une ressource qui n'est nullement à dédaigner en même temps que, par leur dessin, ils fournissent un heureux élément de pittoresque.

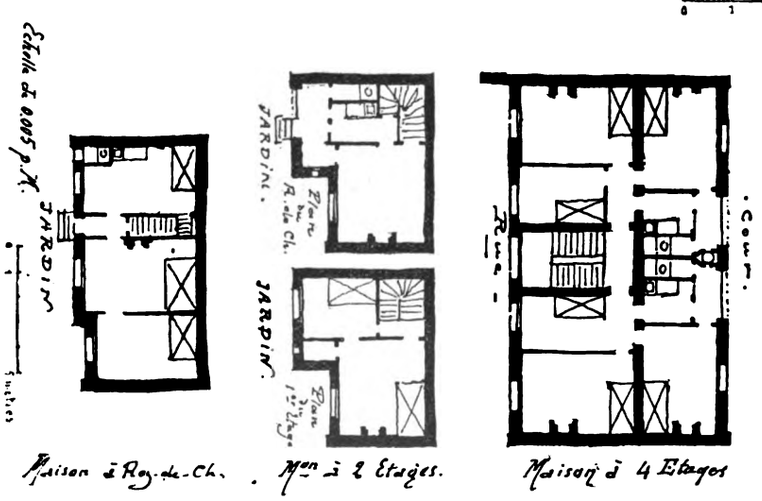
Une question intéressante, dans les habitations à bon marché est l'importance relative donnée à une pièce d'un accès immédiat, servant de salle de réunion, quelque fois de petit atelier, et toujours de salle à manger. Au point de vue économique, grâce à l'installation de fourneaux et d'éviers perfectionnés, cette pièce pourrait se confondre avec la cuisine. Nombre de concurrents mal familiarisés avec les habitudes des ouvriers et ignorants des nécessités budgétaires de leur vie ont étudié leurs types de maisonnettes comme de véritables petites villas suburbaines, recherchant le pittoresque au moyen de silhouettes, peut-être artistiques, mais à coup sûr coûteuses.



St. Denis Competition. First Prize, M. G. Guyon, Architect.



Houses at Laqueuille for the Orleans Railway.



St. Denis Competition. Third Prize, MM. Dupezard & Cintrat, Architects.

Bodenfläche, welche die projectirten Bauten einnehmen sollten, ihre Höhe, ihre Wichtigkeit und ihre Anordnung, in Bezug sowohl auf die allgemeine Zugänglichkeit, als auch auf ihre Stellung mit Rücksicht auf die Anforderungen der Oeconomie und der Gesundheitspflege. Eine wichtige Frage machte sich geltend: — ob es nicht möglich sei, mit Rücksichtsnahme auf die gesellschaftliche Hygiene, Häuser mit mehreren Stockwerken zu vermeiden, während dieselben doch, in der Region von Paris, wenigstens zum Theil, durch den Werth des Bodens und auch des Baumaterials, geboten sind. Es war hier nöthig sich mehr mit der Lage dieser Häuser mit Stockwerken im Gesammtplan zu beschaftigen, als mit ihrer inneren Einrichtung, da die in Paris und anderswo schon gemachten Erfahrungen, vor der Hand wenigstens, das allgemeine Urtheil über die Eintheilung solcher Localitäten festgestellt haben. In den kleinen Häusern dagegen kann die Eintheilung bis ins Unendliche variiren.

Einige Projecte reihten kleine Häuschen längs einer gemeinsamen inneren Strasse aneinander, oder vertheilten sie an den Trennungsmauerr welche die benachbarten Grundstücke abgrenzen; andere versuchten allerlei Gruppirungen, zuweilen auf sehr originelle Weise, und durchbrachen so die Monotonie des Ganzen durch isolirte oder in Gruppen von zwei oder vier vereinigte Häuser, im Anschluss an den mühlhausener Typus. Die Gärten, endlich, welche in manchen Fällen schlecht geplant waren und sehr wenig Gelegenheit zur Nutzbarmachung boten, erreichten in anderen eine wirkliche Bedeutung für die Bepflanzung und wurden zu einer Hilfsquelle, während sie zu gleicher Zeit, durch ihre Anlage, ein schätzbares Element des Malerischen darboten.

Eine interessante Frage in der Einrichtung billiger Wohnungen ist die relatife Bedeutung, welche einer Räumlichkeit mit direktem Zugang zuertheilt wird, die als Wohnzimmer, manchmal auch als kleine Werkstatt, und immer als Speisezimmer dient. Vom Sparsamkeitsstandpunkte aus betrachtet, kann diese Räumlichkeit, Dank vervollkommneten Heiz-und Spülvorrichtungen, auch mit der Küche zusammenfallen. Viele der Concurrenten hatten den Character ihrer Häuschen, in Folge von Unkenntniss der Gewohnheiten der Arbeiter und der financiellen Bedingungen ihres Lebens, als wirkliche kleine vorstädtstische Villen aufgefasst und suchten das Malerische in den Umrissen auf vielleicht künstlerische, aber zu kostspielige Weise. Aber neben solchen Verirrungen muss in einigen Projecten, wie z. B. in dem des Herrn Blanchard (2. Preis), die Einrichtung von Anbauten, als gemeinschaftliche Waschhäuser mit Trockenraum und Vereinigungslokale für Kinder, hervorgehoben werden.

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point of view, thanks to the introduction of stoves and sinks, this room can be used also as the kitchen. A number of competitors, ill-informed as to the habits of the working-class and ignorant of the financial necessities of their way of living, have studied their little houses as if they were real suburban villas, seeking for a picturesque outline, which is, perhaps, artistic, but, of a surety, expensive.

Side by side with this error must be pointed out in some schemes the introduction of subsidiary conveniences, such as a communal wash-house with drying-room and a common playroom for children, as was the case with M. Blanchard's design, which received the second prize.

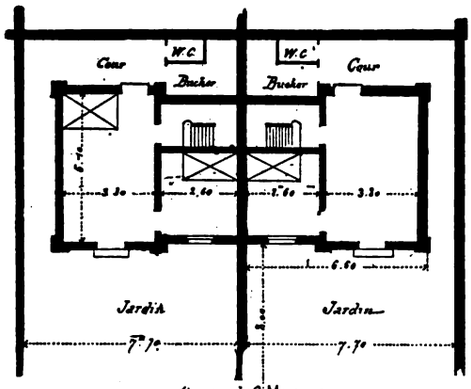
We give below some of the plans which received recompense. Those of M. Guyon George, who obtained the first prize of a thousand francs, show with what simplicity

Mais à côté de ces erreurs, il faut signaler, dans quelques projets, l'établissement de services annexes, comme buanderie commune avec séchoir, et salles de réunion pour les enfants; ainsi que l'a fait M. Blanchard (2e prime.)

Nous donnons ici quelques plans des projets primés. Ceux de M. Guyon George, qui obtint la première prime de mille francs, montrent avec quelle simplicité cet architecte a satisfait au programme. Chacun de ses pavillons isolés est divisé en quatre logements. Nous donnons le plan du rez-de-chaussée de l'un d'eux, qui se compose d'une cuisine et d'une salle commune. On trouve au 1er. étage deux chambres à coucher et un cabinet d'aisances. Ces pavillons, au nombre de six, occupent, dans le plan d'ensemble, le centre du terrain tout en longueur. Deux larges voies les séparent des maisons d'un type plus

Wir geben hier einige der prämiirten Projecte. Die des Herrn Guyon George, welche den ersten Preis von tausend Franken erhielten, zeigen mit wie einfachen Mitteln dieser Architect dem Programm gerecht wurde. Jede seiner isolirten Bauten ist in vier Gelasse eingetheilt. Der beistehende Plan des Erdgeschosses eines dieser Häuser zeigt, dass es aus einer Küche und einem Wohnzimmer besteht. Auf der ersten Etage finden sich zwei Schlafzimmer und ein Abtritt. Diese Häuser, sechs an Zahl, nehmen auf dem Gesammtplan der ganzen Länge nach die Mitte des Terrains ein. Zwei breite Wege trennen sie von Häusern eines einfacheren Typus, welche in geschlossenen Reihen auf der Umfassungslinie des Terrains stehen und demgemäss eine ununterbrochene und etwas monotone Folge bilden. Die Einrichtung einer jeden dieser Wohnungen ist fast identisch mit einer der vier Abtheilungen in den vereinzelt stehenden Häusern.

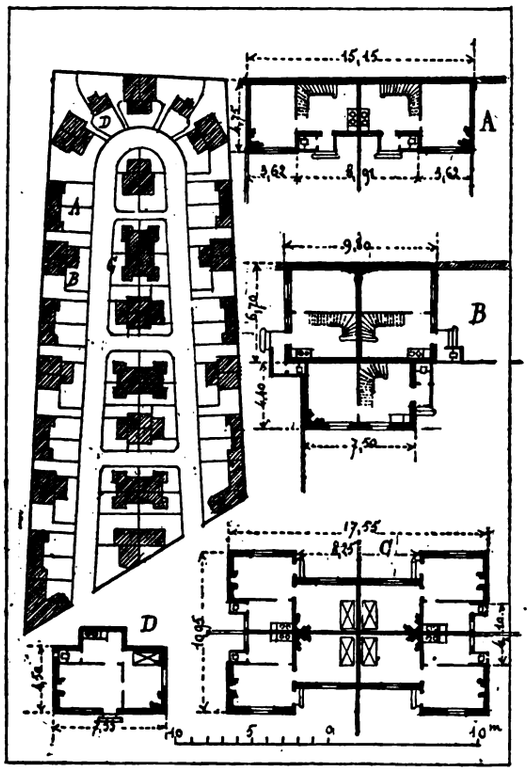
Drei weitere Preise wurden zuerkannt:— Einer von 800 Franken an Herrn Blanchard,



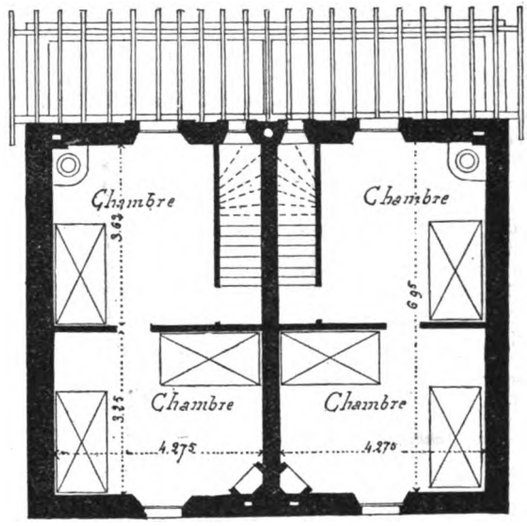
Groupe de 2 Maisons

Plan du Rez-de-Chaussée

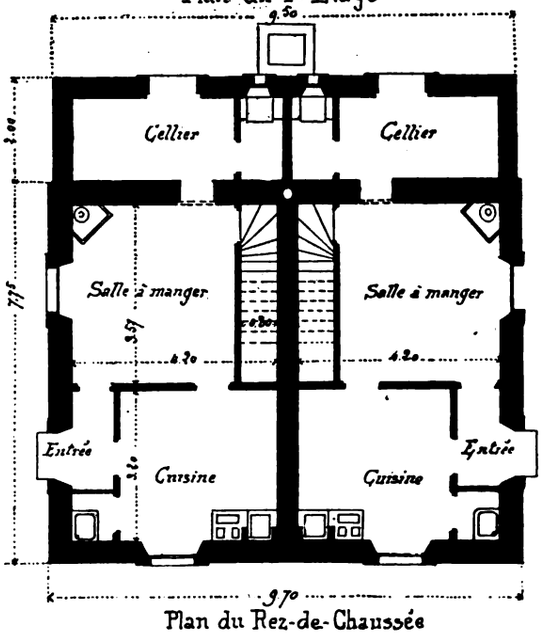
ouse of the S ciete Havraise.



St. Denis Competition. First Mention, F. Paumier, Architect.



Plan du 1er Etage



Plan du Rez-de-Chaussée

Houses at Laqueuille for the Orleans Railway.

this architect satisfied the programme. Each one of his isolated pavillions is designed for four lodgings. We give here the ground-floor plan of one of them, which is composed of a kitchen and a common sitting-room. On the first story are two bedchambers and a water-closet. These pavilions, six in number, occupy

simple qui, en rangs serrés, occupent le pourtour du terrain et forment alors une suite ininterrompue et un peu monotone. La disposition de chacune de ces habitations est, à peu de chose près, identique à l'une des quatre divisions des maisons isolées.

Trois autres primes ont été accordées:

Architecten; einer von 600 Franken an die Herren Dupezard und Cintrat; und einer von 400 Franken an Herrn A. Lequeux. Ausserdem wurden die Herren F. Paumier, Delpierre, G. Courtois, und M. Pichon ehrend erwähnt.

Die Herren Dupezard und Cintrat, welchen

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in the general plan, the centre of the site longitudinally. The wide passages separate them from houses of a similar type, which in close rows occupy the periphery of the site, and thus form an uninterrupted succession which is somewhat monotonous. The arrangements of these dwellings are almost identical with the arrangements of one of the four divisions of the isolated houses.

Three other prizes were awarded, one of 800 francs to M. Blanchard, one of 600 to MM. Dupezard and Cintrat, and one of 400 francs to M. A. Lequeux. Also four mentions were obtained by M. F. Paumier, Delpierre, G. Courtois and M. Pichon.

MM. Dupezard and Cintrat, who won the third prize, distinguished themselves through the clever arrangement of their four-storied houses, shown on the annexed plans. A broad staircase gives access to two dwellings at each floor, consisting of three rooms, a kitchen and a water-closet. These two latter rooms are ingeniously lighted and ventilated upon an open gallery. An open hopper, extending the full height of the house, allows of the immediate discharge of fecal wastes. As to M. Paumier, it was the happy arrangement of his general plan which won for him a first mention. He treated each type of his houses through seeking differences of level, which of course produced picturesque outlines, but certainly would lead to greater outlay.

The success of this competition, as well as the initiation in a great number of places throughout the country of an important movement in favor of the work to which the Société Française des Habitations à bon Marché has devoted itself, has encouraged it to open a new competition, which will be closed December 31, 1891.

The effect is as if an immense investigation had been opened throughout France to study the needs of each region and seek for the means of assuring to the working population healthful and economical dwellings. These solutions demand the collaboration of architects, students of hygiene, of economy and of finance, who represent the different points of view of the problem, and who must be united in philanthropic endeavor in order to attain the desired end.

The competition, then, consists of three parts:

First, an inquiry, having for its end the resuming and completion of the studies, begun fifty years ago, into the conditions affecting cheap dwelling-places in France, not only in cities, but in the country in the neighborhood of great industrial establishments, agricultural undertakings or mines.

Each one of the competitors will confine his investigations to a fixed locality, so as to form a kind of local monograph upon the subject.

Second, a scheme either for houses combining several dwellings, or of isolated or grouped dwellings, for the purpose of remedying the evils disclosed by the inquiry.

Third, the financial combinations which must be adopted in order to build the houses, and to assure, so far as this may be possible, the ownership to their several lessees.

The prizes consist of a grand prize represented by a gold medal, valued at three thousand francs, which will be awarded to that one of the competitors who shall present the work best answering the three heads of the programme. Then for those who shall have treated satisfactorily only such and such portions of the three heads, a silver medal of a thousand francs, two silver medals of five hundred francs, and honorable mentions together with a bronze medal of the society. The competitors must be Frenchmen. We will keep our readers *au courant* with this interesting movement, and will at the proper time discuss the questions connected with it.

Une de 800 francs à M. Blanchard, arch.; une de 600 francs à MM. Dupezard et Cintart; et une de 400 francs à M. A. Lequeux.

En outre, quatre mentions ont été obtenues par MM. F. Paumier, Delpierre, G. Courtois, et M. Pichon.

MM. Dupezard et Cintrat, qui ont mérité la 3me. prime, se sont faits remarquer par la bonne disposition de leurs maisons à quatre étages. (Vois les plans ci-joints.) Un large escalier donne, à chaque étage, accès à deux logements composés de trois pièces, une cuisine et une cabinet d'aisances. Ces deux dernières pièces sont ingénieusement éclairées et ventilées sur une galerie ouverte. Une trémie ouverte dans la hauteur de la maison, permet de se débarrasser immédiatement des ordures.

Quant à M. Paumier, c'est surtout la bonne disposition de son plan d'ensemble qui lui a valu sa première mention. Il a traité chacun des types de ses maisons en cherchant des décrochements qui doivent évidemment donner lieu à des silhouettes plus pittoresques, mais entraînent certainement de plus grandes dépenses.

Le succès de ce concours, et aussi la constatation sur un grand nombre de points de notre pays d'un mouvement très important en faveur de l'œuvre à laquelle s'est vouée la Société Française des Habitations à bon Marché, a encouragé celle-ci à ouvrir un nouveau concours, qui ne sera clos que le 31 Décembre, 1891.

C'est comme une immense enquête ouverte dans toute la France pour étudier les besoins de chaque région et rechercher les moyens d'assurer à la population ouvrier et industrielle, des habitations salubres et économiques. Ces solutions demandent la collaboration des architectes, des hygiénistes, des économistes, des financiers, qui représentent les différents points de vue du problème, et doivent être unis par la philanthropie pour atteindre le but proposé.

Le concours comprend donc trois parties:

1. — Une enquête, ayant pour but de reprendre, en les completant, les études commencées, il y a plus de cinquante années, sur la situation des logements à bon marché en France, tant dans les villes que dans les campagnes, aux abords des grands établissements industriels, agricoles ou miniers.

Pour chacun des concurrents, cette enquête se restreindra à une localité determinée de manière à constituer une sorte de monographie locale.

2. — Un projet, soit de maisons collectives à plusieurs logements, soit de maisonnettes isolées ou groupées, pour remédier aux maux signalés par l'enquête.

3. — Les combinaisons financières à adopter pour édifier ces constructions et en assurer, quand ce sera possible, la propriété à leurs locataires. Les récompenses comprennent: un grand prix représenté par une médaille d'or de trois mille fr., qui ne sera décernée qu'à celui des concurrents qui aura présenté le meilleur travail répondant aux *trois parties* du programme. Puis, pour ceux qui n'auraient traité convenablement que telle ou telle de ces trois parties:

Une médaille d'argent de mille francs.

Deux médailles d'argent de 500 francs.

Des mentions honorables avec médaille de bronze de la Société.

Les concurrents doivent être Français.

Nous tiendrons nos lecteurs au courant de ce mouvement si intéressant et nous traiterons, en leur temps, les questions qui s'y rattachent.

M. Brincourt.

der dritte Preis zukam, machten sich bemerkbar durch die gute Einrichtung ihrer Häuser von vier Etagen. (Man sehe die beigegeben Pläne.) Eine geräumige Treppe giebt auf jeder Etage Zutritt zu zwei Gelassen, bestehend aus je drei Stuben, einer Küche und einem Abtritt. Die beiden letzgenannten Räumlichkeiten sind sehr sinnreich von einer offenen Galerie aus beleuchtet und ventilirt. Ein Schacht in der ganzen Höhe des Häuses ermöglicht die rasche Beseitigung von Abfällen.

Was Herrn Paumier anbetrifft, so war es vor Allem die gute Disposition seines Gesammtplanes, welche ihm die erste Erwähnung eintrug. Er hat die verschiedenen Typen seiner Häuser mit Rücksicht auf ihre gegenseitige Wirkung behandelt, wodurch sich augenscheinlich mehr malerische Silhouetten ergeben mussten, freilich aber auf Kosten der Billigkeit. Der Erfolg dieses Preisausschreibens, sowie die Constatirung einer sehr kräftigen Bewegung in vielen Theilen unseres Landes zu Gunsten der Ziele welche sich die "Société Française des Habitations à Bon Marché" gesetzt hat, hat letzere ermuthigt eine neue Concurrenz zu eröffnen, welche am 31 December, 1891, schliessen wird. Dieselbe gewinnt die Gestallt einer ungeheuren, sich über ganz Frankreich erstreckenden Untersuchung zum Studium der Bedürfnisse jedes Landestheiles und der Erforschung der Mittel, welche nöthig sind um der Arbeiterbevölkeung gesunde und billige Wohnungen zu sichern. Die Lösung dieser Fragen bedarf der Mitarbeiterschaft der Architecten, der Hygieniker, der Nationalsoeconomen und der Geldleute, indem diese die verschiedenen Gesichtspunkte des Problems repräsentiren und durch die Menschenliebe vereinigt werden müssen, falls der gewünschte Zweck erreicht werden soll.

Die Concurrenz wird daher drei Theile umfassen: — I: Eine Untersuchung, deren Zweck es ist, die vor mehr als fünfzig Jahren begonnenen Studien über die Lage billiger Wohnungen in Frankreich, in den Städten sowohl wie auf dem Lande, in der Nachbarschaft der grossen gewerblichen, ackerbaulichen und bergwerklichen Etablissments, wieder aufzunehmen und zu Ende zu führen. Für jeden Concurrenten wird sich diese Untersuchung auf eine gewisse Localität beschränken, um auf diese Weise gewissermassen eine locale Monographie zu erzielen.

2: — Ein Project zur Herstellung, entweder von Collectivbehausungen mit mehreren Wohnungen, oder von isolirten oder gruppirten Häusern zur Beseitigung der Uebelstände, welche die Untersuchung ergiebt.

3: — Die zu ergreifenden financiellen Massregeln, welche nöthig sein werden den Bau durchzuführen und, womöglich, den Miethern die Erwerbung des Eigenthumsrechts zu sichern. Die Prämien bestehen aus einem grossen Preis, in Gestalt einer goldenen Medaille im Werthe von 3,000 Franken- welche nur demjenigen unter den Concurrent, en zuerkannt werden wird der die beste Arbeit über alle drei Theile des Programms liefert. Ferner, für diejenigen welche nur den einen oder den anderen der drei Theile genügend behandelt haben: — eine silberne Medaille von 1,000 Franken; zwei silberne Medaillen von je 500 Franken; ehrende Erwähungen, nebst der bronzenen Medaille der Gesellschaft. Die Concurrenten müssen Franzosen sein.

Wir werden unsere Leser in Betreff dieser interessanten Bewegung auf dem Laufenden halten, und werden, von Zeit zu Zeit, die Fragen behandeln, welche damit zusammen hängen.

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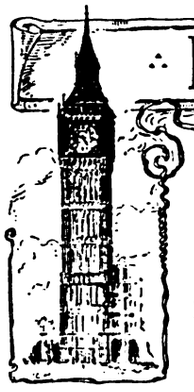

LONDON.

THE ANNUAL PRIZE DRAWINGS. — THE BETHNAL-GREEN IMPROVEMENT. — MR. WATERHOUSE ON COLOR IN ARCHITECTURE. — THE BANQUETING-HALL AT WHITEHALL.

THE Exhibition of Students' Drawings at the Institute is certainly below the average this year, notably in the case of Soane Medallion. There have been seven sets of drawings submitted for this competition, but there is not one which shows any firm grasp of the subject. There is a want of proportion and of knowledge of detail in the elevations, some of which are really badly drawn, and the plans seem for the most part careless and ill-considered. The subject, a Technical College, was certainly difficult, as the question of technical education has not yet received sufficient attention in England to warrant the establishment of many leading principles, such as those which govern the planning of schools or hospitals; but, even admitting this, the type of design was far inferior to that which obtained some three or four years ago.

The Pugin Studentship has brought out some more excellent gifts. Mr. Greenslade, the successful candidate, is a master of the pencil. He works with a firm, accurate line on metallic paper, ignoring the material and all the incidentals of his subject, and contenting himself with a somewhat severe representation in outline. Most unfortunately, he is an enthusiastic devotee of the scrappy style, wherein it is usual to simply show a small piece of moulding at the springing and key of an arch-mould, leaving the spectator to imagine the intervening portion. This method, carried to excess, as, for instance, in a complicated vault, tends to render the drawing, as very dryly described by Mr. Millard, a "fine description in shorthand." Mr. Greenslade was hard pressed by a disciple of Ruskin, Mr. D. J. Blow, and the comparison of the two collections of sketches, placed side by side, was very interesting, representing, as they did, two diametrically opposed schools of thought. While Mr. Greenslade was severely accurate, and despised all meretricious aids, Mr. Blow's drawings were full of feeling, almost poetical, grasping eagerly, even accentuating, the externals which Mr. Greenslade ignored. To the one, the outline was everything and the appearance nothing, while the other drew as he saw, and cared only for his impressions.

The Owen Jones Studentship proved the success of the year, and produced a first-class competition. This continued advance of the study of color by students of architecture is very encouraging, and leads one to the hope that we are in measurable distance of the time when color will take its proper place in an architectural *ensemble*. The President of the Institute, in his address, referred to this subject of color very fully, as described elsewhere. Mr. Francis W. Bedford carried off the prize.

The Tite Prize, the essay, the measured drawings, the Godwin Bursary, the Grissell Medal and the Scientific Masonry Prize were all poorly competed for, and in no case was any work produced above the average, in many cases, indeed, it fell distinctly below.

The Association has at length completed its prolonged and wearying discussions upon its rules, and is now furnished with not only a new set of rules, but a brand-new "Constitution," which is to be almost as unchangeable as the laws of the Medes and Persians. Having spent about nine months in discussing technical questions raised upon the new education scheme, it is to be hoped that some vigorous and decisive steps will be taken to carry the scheme into effect.

The London County Council is proceeding apace with its great Bethnal Green Improvement Scheme, to which I referred in detail last month. The Housing of the Working Classes Committee presented a report to the Council on January 27, which described in some detail the course the Committee deemed it best to pursue to secure the satisfactory execution of the scheme. The report recommended that the area should be divided into three sections, and it was proposed that Section 1, which contained the most insanitary portions of the area, should be first cleared away. When dwellings for the working classes had been erected on Section 1, Section 2 would be commenced, and those displaced from the latter section could find accommodations in the new buildings on the former. Section 3 would then be dealt with in a similar manner. There would be displaced from the whole area 5,720 persons, and in four-storied dwellings there would be ultimately rehoused about 4,600 persons; but their proposal provided for housing about 2,000 persons elsewhere, to enable a part of Section 3 to be dealt with for purposes of a more remunerative character. The accommodation for the 2,000 persons outside the area was made up by vacant accommodation which was found to be existing within the near vicinity of the area itself, and by similar vacant accommodation in the suburbs within easy reach of the area by train, by new buildings which are to be erected by the Guiness Trustees near the site, and partly by some new buildings the Committee proposed that the Council should erect itself on a vacant site in Goldsmith Square, about 1,000 square feet from the area itself. This latter proposal met with the greatest opposition in the Council, for it places the Council in the position of builders, and enables them to produce dwellings for the working classes at a cheaper rate than is possible at the hands of private individuals or companies, because the Council has only to realize enough profit to pay low rate of interest on municipal loans which it would raise to cover the costs of building. This principle, it is contended by many, is in direct contravention of the acknowledged laws of political economy, and would inevitably tend to stifle private enterprise, and so do more harm than good. The advocates of the proposal contend, however, that the advantages of the command of this low rate of interest will enable the Council to deal with the sanitary question of dwellings in a more masterly manner, and, instead of lowering the rents, to benefit the poor by providing them with larger rooms, more spacious yards and playgrounds, and sanitary conveniences which financial difficulties prevent their having at present. The Council, after a long debate and many amendments, decided to purchase the site, but, by a verbal alteration in their resolution, shirked the final decision on this important question.

We had the pleasure of hearing from Mr. Waterhouse upon the occasion of his last address to students from the Presidential Chair of the Institute, a very fascinating and instructive lecture upon "Color in Architecture." After aptly introducing his subject by a courteous reference to the generosity of the last surviving sister of Owen Jones who had recently bequeathed all her property to the "studentship for the study of color, which had already been founded as a memorial to her brother," he deplored the inability of the English nation to realize its ideals of color in architecture. For this failure he assigned two chief causes: one, our national inaptitude for the task, our want of the true instinct for color, and secondly, our climate, which requires far more attention and care to avoid color contrasts in violation of good taste than is needful in sunnier climes. The constant presence of smoke in ever-increasing density was another enemy the artist in color had to contend with, especially in London, though the President felt that there was one material extensively used in London, which was absolutely improved by smoke, and that was Portland stone. This is very true, and the curious harmony in black and white presented by many of our national buildings situated in London is most striking, but, as Mr. Waterhouse truly observed, "harmonies in black and white can hardly be called great achievements in color."

Then again, another difficulty to be contended with was the opposition felt at the present day to anything approaching crude contrasts of color. "Former ages," said the President, "even the most refined were not only tolerant of excess of color, but delighted in it in a way which would be repellent to our present peculiar phase of civilization," and then he laid it down that though it was not necessary to abandon all color in this critical age, it would have to be used with reserve and judgment if it were to find acceptance with the phase of cultivated taste peculiar to the present day.

The application of color to the various materials of commerce such as tiles and faience led to some very thoughtful remarks, but when the President reached the question of the stained-glass of modern times, his feelings burst forth in an anathema maranatha, "Of all the stained-glass with which the churches of this country have been flooded within the last half century, there is not one bit in a hundred that could not be very easily spared. In the majority the drawing is bad, the sentiment is mawkish, and the color, which is the real excuse for shutting out the cheerful light of day, is the worst thing about these stained-glass windows; and yet there they are for all time, unless conflagrations, or another revolution conducted like our first by iconoclasts intervene to rid us of them. The old glass we could ill spare; but, with some few rare exceptions it is different as regards that which has succeeded to its place of honor."

An alteration has lately taken place in the use of the banqueting hall at Whitehall, the only piece of Inigo Jones's great conception of a royal palace at Whitehall that was ever built. Until quite recently this building was used as a chapel royal for the celebration of divine service, but it was considered desirable to discontinue the services and to utilize the building as a Museum for the United Service Institution. The fear that this change of purpose might possibly result in damage to the building, induced the Institute to forward a memorial to Lord Salisbury, wherein it was stated that the building was a remarkable record of seventeenth-century art, and pointing out that the ceiling of the hall was adorned with paintings by Rubens. The memorial went on to say, "The fact that the Chapel Royal at Whitehall has been closed and the rumored possibility of its conversion to purposes likely to necessitate serious modifications of the interior, have induced the Council to express to your lordship [Lord Salisbury] an earnest hope that, to whatever use the government may hereafter devote the building, no structural alterations, internally or externally, may be permitted to mar its beauty as a great work of architecture — the most celebrated example the country possesses of the genius of Inigo Jones." This action of the Institute has been warmly approved by the profession at large, and it is to be hoped that it may be regarded as an earnest of the position the Institute contemplates assuming in future as the authorized champion of our national buildings against all unwarranted interference.

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Two interesting lectures have lately been delivered at the Architectural Association on "Opaque Glass" (or Glass Mosaic) and "Wood Carving." It will be remembered that I gave an account of a meeting at the Institute upon a recent occasion dealing with the subject of "Decorative Plaster Work." February 20, the Architectural Association is going to listen to papers on "Marble and Mosaic." These papers, stimulating interest and inquiry into the various crafts which are really part of the great art of architecture, are of the highest value to students and the hope is felt that similar subjects may be treated from year to year.

ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

HOUSE OF SAMUEL K. WARD, ESQ., 1608 K STREET, WASHINGTON, D. C. MESSRS. HORNBLOWER & MARSHALL, ARCHITECTS, WASHINGTON, D. C.

[Gelatine Print issued with the Imperial and International Editions only.]

FLATS FOR J. CALDWELL, JR., LOUISVILLE, KY. MR. J. J. GAFFNEY, ARCHITECT, LOUISVILLE, KY.

CHURCH OF THE SACRED HEART OF SAINT MARY, DETROIT, MICH. MESSRS. SPIER & ROHNS, ARCHITECTS, DETROIT, MICH.

COTTAGES AT BUCHANAN, VA. MR. PERCY ASH, ARCHITECT, BUCHANAN, VA.

These cottages are built by the Central Land Company of Buchanan. The contract-prices for Major Johnston's house and for cottages Nos. 1 and 5 were, respectively, $1,200, $800 and $1,000.

CHURCH FOR THE BETHLEHEM PRESBYTERIAN SOCIETY, ST. PAUL, MINN. MESSRS. GILBERT & TAYLOR, ARCHITECTS, ST. PAUL, MINN.

This church, which cost about $8,000, is built of rough yellow quarry-stone from local quarries.

THE CHARLESGATE APARTMENT-HOUSE, BOSTON, MASS. MR. J. P. PUTNAM, ARCHITECT, BOSTON, MASS.

The "Charlesgate" apartment-house is now being built on the Back Bay Park, corner of Beacon Street and Charlesgate, East. The basement and first story will be constructed of Indiana limestone, the remainder of brick, with limestone trimmings. A picturesque effect is obtained by grouping the bays on the Charlesgate East front in pairs, and surmounting each pair with gables of brickwork in the Queen Anne style, and by relieving these features against a high roof of green slate. The Beacon-Street front repeats the *motif* of the Park front in the form of the gables. The building is to be of the slow-burning construction. All the main partitions from basement to second story are of brick. Above this, the main partitions are to be of 4″ x 8″ posts, protected by plaster and resting on iron partition-caps. All the floor-joists throughout the building will rest on either brick or iron, and in no case on wood caps. There will be no furring-strips on brickwork or floor-joists, and, consequently, no wooden flues for the transmission of fire. The plastering will be applied directly to the brickwork and to the joists. Moisture will be kept out by a peculiar method of vaulting in the exterior walls, whereby both basement and roof space are thoroughly ventilated, the ventilating current passing through the vaulting and drying out the moisture which permeates the outer walls. Condensation is prevented by the use of galvanized-steel bonding-ties. A sheet-copper bond is used over every window in the building, and serves the double purpose of a bond and a water-shed.

The roof rafters will be of iron. The floors will be thoroughly deafened with four or five thicknesses of asbestos and other felting. Every apartment will be provided with both direct and indirect heat-supply, and also with open fireplaces. An external fire-escape staircase of iron will be built on the rear walls, accessible from every suite, and descending to the inner court-yard or garden. Every bath-room will be ventilated by a special 8″ x 8″ brick flue, and every suite will have one or more special fresh-air supplies, through brick flues, independent of any other suite, the fresh air being warmed in the basement on special steam coils up to about 65° Fahrenheit before being introduced into the suites. The main entrance halls and corridors will be built of fireproof materials, and the staircases will be built of marble on the entrance and basement floors. There will be four electric elevators, and the building will be lighted by electricity throughout. The ground-plan of the "Charlesgate" lot is peculiar in having a large open area in the rear for sun and air. Of some 14,000 square feet in the plot, about 6,000, or over a third, is to be left open and laid out in grass-plots and flower-beds; while the building, being of an L-shape, following the lines of the two streets, has practically at no point a depth of more than two rooms, and every rear room is allowed almost unlimited sunshine. This, too, is done in face of the fact that this particular corner has a very unusual amount of open space in its outlook, facing to the southwest a broad park, and to the northwest a broad river-basin, with, in both cases, an almost uninterrupted view of the hills and country beyond. Nevertheless, the first result of this experiment has proved, by the rapid renting of the suites, that even from an economic point-of-view this sacrifice of land was advisable.

This result, to be sure, in this instance, was undoubtedly partly due to the exceptional situation of the building in its outlook from both streets on the front of the park and river, but beyond doubt the result should be equally attributed to the liberal allowance of rear land and sunshine. Even if, as in this instance, the suites of rooms were let at rentals no higher than those of corresponding size in the more contracted situations, the fact of having a building absolutely filled at the outset, and presumably kept filled afterward, will fully make up for the loss usual with ordinary apartment-houses in the first year or two in getting a complement of tenants, while from the more important sanitary point-of-view much is gained. A large number of the people constantly coming into city apartments do so from the country or suburbs, and exchange, for the sake of convenience, sunny rooms for ones half of which — occupied, too, by men, women and children — hardly ever have a ray of sunshine. However careful the sanitary conditions are as to ventilation and plumbing, the change cannot be a healthful one, and it is much to be wished that in the construction of apartment buildings the investors would carry out the general idea in the plan of this one, and not only gain for their tenants these very essential advantages so far as health is concerned, but further, even at some small sacrifice of land, give their architects sufficient latitude to admit of effective exteriors among a class of buildings becoming yearly more and more conspicuous on our city streets.

[Additional Illustrations in the International Edition.]

MONUMENT TO THE GRAND ADMIRAL GASPARD COLIGNY, PARIS, FRANCE. M. CRAUK, SCULPTOR, M. SCELLIER, ARCHITECT.

[Photogravure.]

Gaspard Coligny, Grand Admiral of France, a thinker of much force and a most sagacious observer, unfortunately for himself, succeeded, two centuries too soon, in disentangling from the half pagan Italian form of worship, with its solemn pomps and superstitious rites, a simple but austere form of religious belief and practice. Yet the too great contrast between the rites observed by Coligny and his coreligionaries and the established forms of worship brought upon them discredit and abuse, and finally cost them their lives. Amongst the many disgraceful blots on the history of France, the Massacre of St. Bartholomew is one of the most inerradicable. He must be either a king or — an Italian to cut the throats of sleeping and unarmed Frenchmen to the sound of the midnight tocsin. We have little concern with the quarrel between Catholicism and Protestantism, but over the fog of old-time prejudices the indignant soul to-day rises to pay its salute to Coligny as an admirable type of Gallic independence and liberty of conscience. The sculptor, Crauk, has admirably caught and interpreted this feeling of revolt, which expresses itself in the Coligny, and serves to attract the attention of the passer and remind him of that disgraceful, though historic, incident. M. Scellier, of Gisors, has prepared for the statue an architectural background and support which admirably harmonizes with the statue, and is so refined and consistent that it is thought worth while to reproduce the work in detail.

PLAN, SECTION AND DETAILS OF THE SAME. — FOUR PLATES.

[Photogravures.]

ORGAN, ST. SEPULCHRE'S, HOLBORN. MR. W. D. CARÖE.

WINDOW, DORCHESTER CEMETERY CHAPEL. MR. C. W. WHALL.

MEMORIAL WINDOW. MR. C. W. WHALL.

HOUSES IN BECKENHAM PARK, BECKENHAM, KENT. MR. G. WARREN COOPER, ARCHITECT.

One of the houses was built for Mr. T. H. Wallis, and contains three reception-rooms, billiard-room, about eight bedrooms, dressing-rooms and bath-room. The brickwork is of red bricks with stone dressings, and the roof is boarded and covered with Brosely tiles. All the barge-boards and sashes and frames are of oak. It has about an acre and a half of ground, and is approached from the lodge entrance of the park, and also from the main road. The other house was built for Mr. Horton with similar materials.

The Earnings of the Builder Architect. — To combine the functions of builder and architect is an arrangement that does not carry with it the emoluments of both. This was recently made apparent when Mr. Wilson Garner, "builder and architect," sued Mr. George Lindsay in the Margate County Court for the balance of a building account, including five per cent for his "architectural duties." These, it seems, included the preparations of plans and the supervision of the work. The judge, however, could not see why a builder should be paid for supervising his own work, and the architectural portion of the claim was therefore reduced to two-and-a-half per cent. — *Specialty.*

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BOOKS AND PAPERS

THE supposedly incendiary fire that, in September last, did considerable damage to the portions of the Alhambra that time, earthquake, war and malicious mischief had left to posterity, excited great interest as well amongst those who have been so fortunate as to visit and delight in its wonders, as amongst those whose heresay knowledge has been enlightened by prints and photographs. The second class is, of course, the larger; but though their regret lacked some of the qualities of acute affliction, through having had no intimate personal knowledge of what had been destroyed, all lovers of art and history are sufficiently familiar with the main features of the building to feel as much aggrieved as though similar mishap had befallen Westminister Abbey or the Cathedral of Nôtre Dame.

The three parts of Max Junghändel's superb work[1] that had already appeared had contained many plates illustrating portions and details of the palace-castle, for according to a prevailing European fashion, in the publication of unbound books on art, the plates are not issued in their final order — though this is indicated — but are published in whatever order the several plates chance to be completed; so that one may get half the details of a building before the general view comes to hand, while the plan may not appear till long after interest has been attracted to other subjects. The plan and a general view of the Alhambra had in this way already appeared, but while examining these, attention was so attracted to the Moresque side of the subject, that the existence within the castle of Charles Fifth's unfinished palace was rather overlooked. So it was with something of a feeling of surprise that there was discovered in this fourth portfolio two views which very fairly declare the intention of this magnificent fragment, so wholly at odds with its surroundings, so entirely the prospective home of a great monarch, who, nevertheless — probably because of his dislike for his Spanish subjects — allowed work upon it to cease in 1533. During the seven years of building the exterior had been carried to a height of two stories, and as the building is a square of 220 feet on a side, the work must, while it lasted, have proceeded most industriously, for it is likely that the material had to be dragged from a distance and up a difficult hill. The feature of the building was to be a great circular hall, ninety-two feet in diameter, with two-storied colonnades which are still in place, and waiting, perhaps, for the row of Corinthian shafts that were to complete the ordonnance or, perhaps, waiting for the dome to be sprung over the great space from the main wall just behind them. Perhaps though, this was to be an open *patio*, a kind of modern atrium shaded at times by some substitute for the ancient velarium. If this is so, then there was no special desecration in using this convenient space, with its deep-shadowed encircling corridors, as a bull-ring; for many a bull has, in these later days, been baited to death in the space where Charles V hoped some day to entertain the grandees of Spain. Spanish wealth, however, was dissipated almost as quickly and easily as it was acquired, and the work on this great fragment so strangely pitchforked into the companionship of the fantastic and delicate work of the Moors is hardly likely ever to be finished. At one time there seemed to be a possibility that something more might be done to it, for it was offered to the Duke of Wellington, on condition that he would finish it. Although he had been created a grandee of Spain in return for his aid in driving the French from the Peninsula, Wellington had no love for the natives and did not care for more than an honorary foothold in the country, so that this half-hearted offer of incomplete magnificence was declined with thanks.

Looking at the plain and unattractive exteriors of the Moorish portions of the Alhambra, their plain blank walls and few and small windows scattered over the surface without apparent purpose, one certainly would not expect to find within them the intricate architectural beauties that every one is familiar with.

The nineteen plates of the Alhambra that have thus far appeared, including as they do the admirable bird's-eye view of the whole group and the plan, upon which the station points of the camera are carefully noted, give a better notion of the building than any set of photographs we have ever seen — and these plates will not fade. Two of the plates in this Part are colored and though the chromo-lithographic work is excellently done, for German work, they are just as unsatisfactory as colored views of the Alhambra decorations usually are. They are true to nature, doubtless; but these fragments when taken by themselves are *so* bright and garish, so loud and vulgar, that the delicacy of the geometric pattern quite loses its value. In such bits as these no impression can be conveyed of the tonality of the whole. Here the bright individuality of some part of the pattern quite stares you out of face, while in the original, the mere quantity of items however vivid they may be in themselves, bring about optical impressions of quite another kind.

This Part does not bring to the same stage of completeness the series of views of other buildings of which it contains one or more details. The Escorial, of which the intense gloom was pictured by Mr. Rich in these columns a few weeks ago, is further explained by a plan and cross-section which do not add much to our knowledge as the plan is not lettered and there is no legend to describe the distribution of the many divisions of the immense structure. A detail or two is given of the *ayuntamiento*, or town-hall of Seville, of which a portion was illustrated in these pages a short time since — a portion of that wing of the structure where the carved detail has been completely finished, and exhibits a rich though hardly a chaste example of Spanish Renaissance design; the other wing of the building is left quite untouched by the sculptor's chisel and the effect is really quite as good as that of the finished part. The Spanish Renaissance follows the manner of the Italian work in that style — but at a very respectful distance — and it is not often you find an entirely satisfactory composition, though you often come upon bits which are altogether charming though there are no examples of it in this instalment. The Spanish architect of the period felt more at home in the Plateresque, so-called, style where he felt at liberty to be as eclectic as he pleased to the very verge of Barocco. He was an artist with an eye for rich effects, though he cared little for the purity of form and the integrity of style.

The Plateresque style is one which is hard to describe or define, for it seems to have no well settled limits and under this head are classed buildings which cannot properly be classed elsewhere. Yet it is rather a surprise to find our author, whose attributions we have generally been able to agree with, calling the Cathedral of Segovia a Plateresque structure although in other analogous cases he has called such buildings partly Gothic, partly Plateresque. Here at Segovia are crockets and pinnacles in abundance, flying-buttresses and low pointed arches, gargoyles and pierced Gothic balustrades while all that seems to be Plateresque are two nondescript little domes, an entrance — beneath a full-centred arch — around which the Classic orders have been used and a sprinkling of Plateresque panels, escutcheons and so on. Perhaps it is the interior that gives the building its classification but as yet no plate has appeared which shows what is the character of this interior.

[1] "*Die Bankunst Spaniens*" in ihren hervoragendsten Werken, Dargestellt von Max Junghändel, architect. Part IV, J. Bleyl, Dresden; Brentano, Chicago, sole agent for the United States. Price $10.00 per Part.

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

CHIMNEYS.

LOUISVILLE, KY., March 6, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Can you furnish us or inform us where we can get a work on chimney-flues. What we want is a book that will give us this information, "How to build a flue correctly; causes of smoky flues, and how to correct same."

Respectfully, HEGAN MANTEL CO.

["*The Open Fireplace in All Ages*," by J. P. Putnam, Price $4.00, Ticknor & Co., publishers, is an excellent guide for ordinary practice. "*Tall Chimney Construction*," by R. M. and F. J. Bancroft, published by J. Calvert, Manchester, England, deals with factory chimneys. — EDS. AMERICAN ARCHITECT.]

THE AUDITORIUM TOWER.

CHICAGO, ILL., March 24, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — In the *American Architect* of March 21st, your Chicago correspondent refers to the Auditorium Tower and deduces from its experience an inference unfavorable to the erection of very high buildings.

Please permit me to state that the erection of the Auditorium Tower seems to have exercised the very opposite influence upon architects and property owners in this city. Before the erection of this tower, which is really a small office-building, containing nine offices on each floor, and which is 258 feet high from the foundations to the top of the wall coping (not including an observatory 30 feet high built upon the roof), it was generally assumed by constructors that the limit of height for safe building on Chicago soil was twelve to thirteen stories; but the precedent set by the designers of the Auditorium Tower has encouraged others to extend the height of their buildings to a still greater altitude, the buildings enumerated by your correspondent being the most noteworthy. In the case of all these buildings, however, the system of construction adopted has been a skeleton of steel columns and beams, filled-in with a very light shell of brick or terra-cotta, while the walls of the Auditorium Tower are of solid stone and brick masonry, four feet thick at the sidewalk line, diminishing to two feet six inches at the top. It will, therefore, be seen that the more recent construction very materially diminishes the ratio of load upon soil to height of buildings.

Yet, it is true, as your correspondent states, that the settlement of the Auditorium Tower was greater than the allowance made by its architects; this was due, however, not to any occult or mysterious cause, but to an increase of load from 14,800 tons as designed and calculated, to 16,000 tons, as built, which increase was consequent

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upon an addition of 18 feet to the height of the Tower and a radical change in its internal arrangement; all determined upon by the owners of the building nearly one year after the completion of the foundations. The action of the tower was simply another demonstration of the correctness of the theory upon which Chicago constructors work: to wit, that equal loadings per unit of soil area of different adjacent foundations produce equal settlements; that unequal loadings per unit of soil area produce unequal settlements and that the inequality of movement increases very rapidly with increase of load per square foot of soil.

Very respectfully yours, D. Adler.

Notes and Clippings

Ruins in Mashonaland. — The following information regarding these famous ruins was received from Mr. E. A. Maund by the Royal Geographical Society, London, which he obtained from Mr. Phillips, in correction and amplification of the remarks made by him at the meeting of the Society on November 24, 1890. Mr. Phillips was all over that part of the country in 1866, and was with Mr. Hartley the year after, and saw many old gold-diggings near the hill which then first got its name of Hartley Hill. In 1868 he and Mr. Westbeach crossed the Hanyani and went down the Mazœ. In October, 1871, he was hunting at the junction of the Ingwesi and Lundi Rivers, when a letter was brought to him from Herr Mauch. It was not signed, but the writer reminded him of an adventure they had together with five lions on the Mahalapsi, so that he might identify him. Mauch said he was living with a man named Renders (not Kinders), and was in a bad plight, having been robbed of everything except his papers and gun. He begged him not to bring a Matabele with him, as they were living among the Mashonas. Phillips went and found Mauch and Adam Renders, an American, living on the top of a kopje, a few miles southwest of the ruins of Zimbabye. It was a pretty place. A waterfall coming down from the ridges above fell into a pan by the hut, in which it disappeared, to come out again in a gushing fountain several hundred feet below, a cave of refuge being close by, with water flowing through it, to which they and their Mashona hosts could fly, and barricade themselves in with a bowlder of rock, when Matebele raiding-parties were afoot. Mauch told him of some ruins in the neighborhood, and next day the party went to see them. It was really Renders who first discovered these ruins, three years before Mauch saw them, though Mauch and Baines first published them to the world, and they only described what the old Portugese writers quoted by Mr. Maund talked of hundreds of years ago. Mauch, on their arrival at the Zimbabye ruins, asked what they thought of them. He (Phillips) confessed that he was not greatly impressed, as they were exactly like several others he had seen in other parts of the country. There were the same zigzag patterns, and the mortarless walls of small hewn stones. Shortly before, when hunting in the mountains to the west of Zimbabye, he had come upon a regular line of such ruins, one of which must have been a very large place. It had three distinct gateways in the outer wall, which were at least thirty feet thick at the base; and an immense ironwood tree, that would have taken hundreds of years to grow, had grown through a crevice in the wall and rent it asunder. On the side of a gateway were vast heaps of ashes, with occasional potsherds about, the only evidence of the old inhabitants. He had found the same kind of ruins all over the country, very frequently on the summit of difficult kopjes. Those at Tati and Impakwe are good examples; but the most perfect, perhaps, of all lies northwest of Tati. The tower there is about sixty feet in length and breadth, and eighty feet high; the walls about fifteen feet thick; and it is entered by a passage winding spirally to the top, which is so arranged as to be commanded by archers from the interior all the way, and is so narrow that it admits of the passage of one person only at a time.— *Science.*

The Vyrnwy Masonry Dam. — This work has lately been completed for the purpose of storing the waters of Vyrnwy lake for the city of Liverpool. Aside from its engineering features — which are sufficient to make it notable — its architectural symmetry is such as to attract instant attention. There are captious critics who denounce in unmeasured terms the desecration of picturesque localities by the engineering structures which the exigencies of our civilization call into existence. In many cases such reproaches may be deserved, since the engineer, in the effort to accomplish his objects, has in mind the great questions of economy and utility, and places so low a value upon the architectural and general artistic effect of his work, that these are ruthlessly sacrificed wherever they may come into conflict with the others. In this case, the eye of both engineer and artist will be charmed with the effect, and the natural beauties of a picturesque region, if not enhanced by the artificial structure, at least are not marred thereby. We give in what follows, a brief outline of the more important facts and figures relating to the Vyrnwy dam. The artificial lake formed by it has an an area of 1,165 acres and is 67½ miles from the previously-existing storage reservoirs. In order to obtain the required storage-capacity for the Vyrnwy lake, it was found necessary to give the dam a height of 144 feet above the lowest part of the bar of rock on which it was constructed, and of 84 feet above the bed of the river. The length of the embankment is 1,255 feet. Above this again, a viaduct, 1,173 feet long, is built upon the dam, the central portion, 593 feet long, of this viaduct being carried upon arches. Beneath these arches the overflow from the lake passes in times of flood, and falls over the back of the dam to an artificial basin below. The compensation water to the Vyrnwy and Severn Rivers is discharged through the dam near the river-level by one of two tunnels, or sluice-valve culverts, each fifteen feet in diameter. The area of a cross-section of the wall composing this dam is 8,972 square feet; its weight, one foot thick, 644.2 tons; length of the base line, 117.75 feet. The material used in its construction is what is called, most appropriately, Cyclopean rubble. Thirty-three per cent of the stones weigh over four tons each, and twenty-one per cent weigh between two and four tons. The lake formed by the Vyrnwy dam stands at a height of 525 feet above the level of the sea, and a natural flow of the water the entire distance to Liverpool is thus afforded. — *Manufacturer and Builder.*

Sand Bricks. — According to the *Brickmaker*, bricks are now being made from the waste sand employed in grinding and polishing plate-glass. Plate-glass is ground by means of wooden plates covered with iron, between which quartz sand abundantly moistened with water is brought. By the manipulation of grinding, the quartz sand becomes mixed with particles of iron and sand, and, after it has lost its sharpness, is piled up near the manufactory as worthless material. This sand contains about 15 per cent of glass particles and 2 per cent of iron particles. It is very hygroscopic, and before it can be used for the manufacture of bricks, has to be dried, and is then pressed into the mould under enormous pressure. The bricks thus obtained are subjected to a temperature of 2,732 degrees F. At this temperature the glass enters into combination with the sand. The bricks thus produced have a specific gravity of only 1.5; they are perfectly white and are not attacked by acids, and for this reason would be especially desirable for use in factories of chemical products, particularly in factories of sulphuric acid: they also resist frost.

Trade Surveys

Within the past ten days or two weeks, a very large amount of business has been transacted by builders and others engaged in various construction enterprises in the way of securing raw material for the coming season. The activity has extended over almost the entire line of construction-material, from iron and steel down to the smallest articles that go into house, mill and shop construction. Large contracts have been made for brick, lumber, cement, planing-mill supplies, shingles, lath and hard woods in different states of completion, as well as builders' hardware, electrical supplies and a long list of other products which must be ordered for weeks or months before they can be delivered. This activity has not yet shown itself in the iron markets. So far as it goes, it shows that there will be a great deal of work done, but there is no telling as yet whether the volume of work will reach or whether it will exceed that of last year. Builders, engineers, contractors and others have been rather slow to begin, but the break they have just made affords some encouragement that the season will be up to the average. So far as can be learned, the prices at which goods and supplies have been bought are a little below the prices of last year. Prominent builders who have been consulted with regard to the probable course of building activity say that there will be much more building in small towns and cities this year than last; in short, they think the tendency to decentralization of industries is more strongly marked than heretofore. They also note the fact that there is a stronger tendency in the transplantation of industries from one State, city and town to others. This is especially true as between the Northern and Southern States. A great many industrial establishments are being transferred from the North to the South, but it is doubtful whether the capitalists in the South are greater than in the North; that is to say, the extensions and additions to industrial establishments in the North will probably more than offset the planting and transplanting of new establishments in the South. With reference to the labor question, there is as yet nothing upon which to base opinions or inferences. The only general strike anticipated is that of the miners, as has been stated. Negotiations for more favorable terms with workmen are in progress in New York, Chicago, St. Louis and in four or five farther Western cities. The builders in these cities think these negotiations will terminate harmoniously, and that work will be continued without interruption. With reference to the monetary situation, there is still a good deal of dissatisfaction, not so much among the banking interests themselves as among the smaller class of borrowers, who are comparatively new in business. Old established concerns find no difficulty in effecting loans and in being accommodated. There is a large class of new and small concerns that are compelled to struggle: first, because of the fact that there is a sufficient demand for all available money from the older concerns, and, second, because of the fact that the new concerns are not sufficiently known, or do not possess the proper commercial standing. With reference to the agitations in the Western States concerning mortgage loans, it must be said that money-lenders have cause for discouragement, at least on the surface. It is hardly probable, however, that the discontent will assert itself finally in the enactment of actual vicious legislation. Glowing reports continue to be received from the farther West, and especially in the mining sections and in those developing industries which follow in the train of prosperous mining. A great deal of capital which has been afraid of railroad enterprises is drifting gradually and in a fragmentary way into enterprises of one sort or another in the far West. Land-values are improved in that locality, and are following the course of the improvement in the Gulf States. In the Southwest there is also noticeable a continuance of industrial activity. Shops and factories are springing up in Texas, where it might be supposed there was very little room for them. This tendency has been referred to heretofore, and it is referred to again only to emphasize the fact that the springing up of little shops and factories in remote States is going on at a greater rate. The industries in general are in a thriving, though not strictly in a vigorous condition. Manufacturers are working only up to a safe and clearly-defined demand. Jobbers report a good demand in all lines and kinds of goods. Textile manufacturers are pretty well satisfied with the shape things are taking. Southern cotton goods are meeting with fair demand, and the projection of new factories is quite frequent. Carriage and wagon works are very busy at present. Farmers and cotton-planters are evidently preparing to extend their areas of cultivation. With all the complaining that is heard concerning financial conditions of the cultivators of the soil, they are, in fact, improving year by year, and are less subject to extortionate rates either from banks or from petty merchants.

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TRADE SURVEYS. 32

THE most important professional news of the week is the resignation, by Mr. Windrim, of his post as Supervising Architect of the Treasury Department. Mr. Windrim having been offered the place of Commissioner of Public Works of the City of Philadelphia, at a salary more than twice that paid by the United States for service requiring far more skill, and involving many times the responsibility, naturally lost no time in accepting it, and, while we congratulate the City of Philadelphia on having secured so able and skilful an officer, we imagine that it will be no easy matter to fill his place at Washington. Of course, we think, with nearly all those who know anything of the operations of the Supervising Architect's Office, that it would be far better and more economical for the country to abolish the office altogether; but it would probably be best to appoint a temporary officer, to see to the winding-up of its affairs, and the proper completion of the work now in hand. So far, the only name that we have heard suggested for appointment is that of Mr. William L. Windom, a son of the much-regretted Secretary of the Treasury, who is an architect by profession, and has had the advantage of two years' experience as a subordinate in the office of the Supervising Architect. From what we know of Mr. Windom, who is a young man, not yet thirty, we think, such an appointment seems to us likely to be a satisfactory one. It is hardly necessary to say that the Supervising Architect does not, and cannot, do much professional work with his own hands and head. For all such service he is provided with designers, draughtsmen, computers, experts and engineers in unlimited numbers, while he is himself expected to divide his time between keeping an eye on his staff, overseeing the letting of contracts, and meeting with proper blandness the exactions of Congressmen, some of whom are said, on very good authority, to have utilized the office for getting plans made gratuitously for their own houses, while many others, who would scorn to extort private services from a public officer, find themselves moved with a laudable spirit of inquiry into the building operations of the Government, which can only be satisfied by long and frequent interviews with the head of the Supervising Architect's office. For fulfilling a portion of these varied duties, Mr. Windom's distinguished social position, and long familiarity with official life in Washington, would well fit him, while his professional knowledge, if not fortified by so much experience as that of the previous incumbents of the office, has been acquired by earnest industry, under favorable auspices.

THE Combined Committee, consisting of delegates appointed by the American Institute of Architects, the National Association of Master-Builders, the National Association of Building-Inspectors, the National Board of Underwriters, and the National Association of Fire-Engineers, which met in New York last week, to consider the subject of preparing a model building-law, which should be recommended for general adoption, decided, after the first day's discussion, that the conditions prevailing in different cities were, for the present, too diverse to make it possible to draw up a detailed code of regulations which would be generally adopted, and that it would be better, and more useful, to offer to State Legislatures a concise scheme, embracing the principles most essential to safe construction, which could be everywhere adopted as a basis upon which local codes could be formed by adding details suitable to the varying conditions and habits of building which prevail in different cities.

AS finally agreed upon, the recommendations of the Combined Committee were as follows:

1. That all buildings over seventy feet in height be constructed throughout of incombustible materials, protected in the most approved manner for resisting fire.
2. That interior structural ironwork in all buildings be covered and protected by fireproof material.
3. That all buildings over fifty feet in height be furnished with permanent stand-pipes and ladders for the assistance of the Fire-Department.
4. That the height of buildings to be erected should not be more than two and one-half times the width of the principal street on which they are situated, and that no building, or portion of a building, except church spires, should be more than one hundred and twenty-five feet high, except under a special permit.
5. That the open floor-space, not divided by walls of brick or other incombustible material, in all buildings hereafter erected for mercantile or for manufacturing purposes, should not exceed six thousand square feet, without special permission, based upon unusual and satisfactory precautions.
6. That every building to be erected, which shall be three stories high or more, except dwelling houses for one family, and which shall cover an area of more than twenty-five hundred square feet, should be provided with incombustible staircases, enclosed in brick walls, at the rate of one such staircase for every twenty-five hundred square feet in area of ground covered.
7. That wooden buildings, erected within eighteen inches of the line between the lot on which they stand and the adjoining property, should have the walls next the adjoining property of brick; or when built within three feet of each other should have the walls next to each other built of brick.
8. That the owner of an estate in which a fire originates should be responsible for damage caused by the spread of the fire beyond his own estate, if it should be proved that in his building the foregoing provisions were not complied with. A certificate from the Inspector of Buildings shall be considered sufficient evidence of such compliance, if the building shall not have been altered since the certificate was issued.

In addition to these general propositions, another series of suggestions was adopted, providing for proper fire-stops between the stringers in wooden stairs, and between all studdings and furrings, in the thickness of the floors, and for six inches above; for carrying brick party-walls, and outside walls adjoiuing neighboring property, above the roof, and for anchoring wooden floor-beams to brick walls, in such a way as to prevent the overthrowing of the walls in case the beams should be burned off and fall.

ARCHITECTS and builders will readily concede that the enforcement of this short code, which is intended to apply to all towns and villages, would, without any additional regulations, at once immensely lessen the risk to which persons and property are now exposed in this country from fire, which, being by far the most universal and dangerous enemy to buildings and their contents, naturally received the greater part of the attention of the Committee; but the enforcement of a code, however good, is not always easy; and it was with the object of making the present regulations, where adopted by State Legislatures, self-enforcing, that the eighth section, the suggestion of which, in substance, came from the delegation appointed by the Fire-Engineers, was agreed to, after considerable discussion and modification. Those familiar with the subject will observe that it is a mild application of a portion of the law which prevails in France and Italy, and which has been the principal agent in making an extensive conflagration unknown in either of those countries. It would hardly be possible to persuade the people of this country, who have been permitted to burn

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up other people's property at will, to submit at once to the full rigor of the French Code, but the justice of the Committee's provision is so evident that there is reason to hope that it will find general acceptance, to the incalculable benefit of the country. The present French law is a development of the principle laid down in the Code Civil, Section 1383, which says that "Every one is responsible for the damage he has caused, not only by his acts, but also by his negligence or imprudence." Section 1733 of the same Code specifies the mode in which the principle of § 1383 shall be applied in cases of fire in rented buildings, as between the landlord and his tenants, by saying that the tenant "is responsible for fire, unless he can prove that the fire occurred by chance, or by *force majeure*, or was communicated from a neighboring building." The following section, No. 1734, provides that "If there are several tenants, each is responsible for the whole loss from fire; unless it is proved that the fire began in the apartment of one of them, in which case he alone is held, or unless some of them can prove that the fire could not have begun in their apartments, in which case these are not held liable." In January, 1883, this last Section was modified by an act of the Legislative Assembly, which substituted for the first clause of it another, providing that "If there are several tenants, all are responsible for fire in proportion to the rental value of the part of the building which they occupy." Around these Sections of the Code has grown up a considerable mass of explanatory decisions, by which it is now established that a person who suffers damage through the spread of fire from a neighboring building can recover compensation from the owner of the building in which the fire originated only by proving that it broke out, or spread, by his, or his tenants', negligence or fault; while, as between a landlord and his tenants, the legal presumption is that the latter are at fault for the occurrence of a fire, and those of them who cannot prove positively that they are not at fault must make up the landlord's loss. In practice, all these various responsibilities are assumed by the insurance companies. The landlord insures his building, including his responsibility to adjoining owners, and, by his policy, delegates to the insurance company his right to recover the loss, if any occurs, from the tenants; while the latter, in their turn, insure not only their own furniture, but their *risque locatif*, or responsibility to their landlord for the consequences of fire which they cannot prove not to have originated in their apartments; but there is always present in the minds of the parties concerned the possibility of a mishap in which their insurance might not protect them, and, in practice, tenants will not hire, or landlords build, houses in which both the occurrence and spread of fire are not pretty thoroughly guarded against.

THE consequence is that while there is a good deal of bad and cheap construction, both in France and in Italy, where the Code, Section 1590, makes very similar provisions, the economies of the speculating builder rarely take the form of neglecting precautions against fire. In Paris, particularly, where rubble masonry of small stones is much used instead of brick, it is not uncommon to have a house fall down, but it is an extremely rare occurrence to have it burn, for the simple reason that tenants and purchasers, having the fear of responsibility for fire to sharpen their perceptions, assure themselves on that point before they will have anything to do with a new building; while the execution of the mason-work, which involves them in no accountability to others, receives much less attention than it deserves. From the insurers' point of view, the French system, although it throws nominally a much greater risk on the companies, exercises an influence upon construction which makes the risk, although much more comprehensive than with us, actually far smaller. In Paris, the ordinary premium paid by owners for insuring their own property is ten cents per thousand dollars, — about one-tenth the best rate for dwelling-houses in our cities. The owner's responsibility to his neighbors is covered by an additional ten cents per thousand dollars; while the liability of tenants to their landlords is covered for twenty cents per thousand dollars; and even at these rates, as we are told by the Massachusetts Commissioners for the revision of the Boston Building-Law, one insurance company pays regular dividends of one hundred and forty per cent. It must, of course, be many years before so mild a measure as that proposed by the New York Committee would have its full effect, but its influence would very soon be felt, and, in connection with the provisions with which the Committee proposes to combine it, and the acknowledged skill of American architects in fireproof construction, which, when they have the opportunity, they practise with a perfection unequalled anywhere else in the world, the result would certainly be a rapid improvement in building methods, to the great advantage of the whole community. We need not apologize for restating the figures of the fire-losses in this country, which every citizen should not only know, but understand in their full significance. The best estimate of the annual cost of fires in this country, including losses actually suffered by uninsured owners, and premiums paid for insurance, puts it at more than two hundred million dollars, while the cost of maintaining our fire-departments is about a hundred million more, making three hundred millions of annual outlay which might be saved if buildings, and the goods in them, would not burn. If this annual loss were reduced to the French standard, which, as indicated by the relative premium rates, is not more than one-tenth of ours, we should make a saving of two hundred and seventy million dollars a year. What this means may be best shown by a few comparisons. With that sum, which, it must be remembered, would unquestionably be actually saved every year after the rules proposed by the New York Committee had come into general use, all the pensions, the interest on the public debt, and the whole cost of maintaining the army and navy of the United States could be paid, without drawing on the public treasury; or, if we preferred, we could distribute it to our Congressmen, to whom it would give an income of nearly seven hundred thousand dollars a year apiece; or to our army, the private soldiers in which might thus have their wages, without expense to the Government, raised to the handsome sum of eleven or twelve thousand dollars a year each. If, which would be more reasonable, we should save up the money, and apply it to the improvement of building, it would, if put at interest, pay the cost of rebuilding every house, store, warehouse, factory, theatre, schoolhouse, church, hotel and office-building in the United States every twenty years, not only without expense to the owner, but with enough left over to give him a handsome *douceur* in addition; or, if he were content to keep his building without change, it would put the value of it into his pocket in cash; and we say without fear of contradiction, that the money would be better applied to any of these uses than to its present object, of feeding huge bonfires, and paying people to go about and collect contributions for putting them out; and if the New York Committee has accomplished anything towards making the change, it will deserve the gratitude of the community.

FIRE AND WATER, in speaking of the work laid out for the Combined Committee which met in New York last week, expresses its surprise that in the preliminary suggestions which were prepared for it no mention was made of the subject of the "safe construction of elevator and light shafts, such dangerous conductors of fire." At the meeting of the committee, this subject was discussed at great length, but it was evident that a diversity of opinion existed, not only among architects and builders, but among fire-engineers, as to the way in which such shafts should be constructed, and it was finally decided to omit all reference to them in the scheme of general suggestions adopted by the committee, in the hope that closer observation would make it more certain how to build them with the best effect. The question is, naturally, between shafts open on all sides, and those enclosed in brick walls. Of late years, the latter have been commonly regarded as the safest, and are required by law in several cities; but the experience of fire-engineers does not show that they are always the best. Unless carried above the roof, and covered with a skylight which is easily broken by the heat, so as to let smoke and flame pass out, they act as chimneys, which draw the fire strongly from the basement to the upper stories and roof, so that, in such buildings, the appearance of flame in the cellar and roof is almost simultaneous. If the shaft has tin-covered doors, kept closed, and the skylight glass breaks at the right time, the fire will be kept in the shaft, and escape without communicating to the upper stories; but it is found that, in practice, it is often advantageous to have the doors to the shaft left open, as when the glass in the skylight breaks, the draught into the shaft assists greatly in clearing the upper stories of smoke, which penetrates into them in various ways, and may do great damage, even if not accompanied by fire.

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FRENCH ARCHITECTURE.[1]—II.

HOWEVER, in the general disintegration the old organization did not entirely disappear. When the ties were severed which bound the people to their protectress and when the entire land was delivered over to barbarian invasions, they were indeed forced to defend themselves wherever they were, in an isolated fashion, for there was no cohesion anywhere and consequently no concert of action. The population took refuge in the cities, which they turned into so many fortresses, and within which the old institutions were safeguarded. This fact is evident, especially in the south, where Roman occupation had left the deepest traces and where the Franks of the north could never gain a secure foothold.

This concentration in local unities was, moreover, a natural outgrowth of the distribution of population common to the Gauls and the Romans. We must not fancy the rural regions inhabited at that period as they are to-day. At Rome and around Rome, "there was no country; at least the fields in no way resembled those of to-day; they were cultivated, of course, but they were not peopled. The proprietors of the land were the inhabitants of the cities; they went out from their homes to look after their country estates, where they often kept a large number of slaves; but what we now term the country, with its scattered population occupying isolated dwellings or small villages, but covering the soil everywhere, was almost unknown in ancient Italy.

"In the same way, it is cities that one constantly encounters in the Gauls and in Spain: away from the towns the land is covered with woods and forests. Consider the character of the Roman remains and Roman roads. The latter are highways running from one town to another; the network of little routes which checker the country to-day was then unknown. There was nothing at that time which resembled the countless small monuments, the villages, châteaux and churches which have sprung up all over the land since the Middle Ages. Rome has bequeathed us nothing but the mighty imprints of the municipal system, vast monuments destined for the service of a numerous population concentrated at one spot. From whatever point of view one contemplates the Roman world, he finds almost without exception this great preponderance of cities and the non-existence socially of the country."

It was in the cities, which were genuine fortresses, and which may be considered as islets emerging here and there above the barbarian flood, that the old traditions, manners and institutions, all, in fact, that remained of national existence took refuge. Sheltered within the walls of these strongholds, the primitive population could guard a part of their privileges, and conduct the internal government in conformity with ancient institutions. When everything around them had been transformed, cities like Marseilles, Arles, Nîmes, Narbonne, Périgueux, Toulouse, Bourges, Paris, Rheims and Metz maintained for centuries, still, a relative independence, and presented an aspect wholly foreign to that which feudal society everywhere assumed.

It was in country regions that this society effected the most radical changes. As the invasions succeeded one another, each warfaring band pushed a little farther than its predecessor had done in quest of new lands to expropriate, the chiefs taking possession of vast domains, which they wrested from the former owners; but it should not be supposed that from the outset the invaders proceeded to a peaceful allotment of territory, wherein each member of the band had his part, of which he was to become the undisturbed proprietor. To effect this, it would have been necessary to disperse, which was hardly feasible in a subjugated but rebellious and hostile country. The newcomers were then in most cases obliged to remain encamped on the unfriendly soil, surrounded by redoubtable defenses. Fortified castles now began to spring up, and these multiplied in measure as the invasion progressed.

[1] From the French of P. Planat, in Planat's "*Encylopédie de l'Architecture et de la Construction.*" Continued from page 5, No. 797.

The primary consequence of such occupation, important in view of the ulterior mixture of the races, was not long in declaring itself; namely, a very unequal distribution of property in the hands of the conquerors. The barbarians, being neither able nor willing to form unions with the subjugated inhabitants, were driven into that state of savage and armed isolation, which was moreover suited to their instincts. "But isolation is only supportable in a laborious condition. . . . Now, the barbarians were essentially idle, they therefore required to live together, and many companions remained about their chief, leading on his domains pretty nearly the same life that they had led before in his train. But from these circumstances it arose that their relative situation was completely altered. Very soon a prodigious inequality sprang up between them. . . . The chief, become a great proprietor, disposed of many of the means of power; the others were always simple warriors, and the more the ideas of property established and extended themselves in men's minds, the more was inequality, with its effects, developed. At this period we find a great number of freemen falling by degrees into a very inferior position; the laws speak constantly of freemen, of Franks, living on the lands of another and reduced almost to the situation of the laborers," that is to say of the original inhabitants.

Another consequence, not less important than the first from our present standpoint, was destined to show itself soon. The cities, as we have said, long served as a rampart to the conquered people, who sought refuge within their walls. The Franks penetrated into these with difficulty and could not have attempted with sufficient guarantees to make them their dwelling place. The Franks needed, moreover, a free field for the excursions by which they carried afar their pillaging exploits. It was therefore in the abandoned country regions that they settled.

The establishment of the feudal régime brought about a revolution in the distribution of the population. For the agglomerations in cities a different order of things was substituted; the new owners of the soil lived apart, each in a fortified dwelling, which he called his castle, and at a great distance from neighbors. Within the walls of his fortress, placed on some lofty, isolated site, he shut his family and surrounded it with a few defenders, who were attached to his person, and shared his roof and his table. Around the base of the castle rock, were grouped the *coloni* and serfs who cultivated the estate; a priest settled among these and founded a church; the priest became the village curate, while the castle had its chaplain. Such were the component elements of feudal society, which constituted a complete, distinct and isolated unity; it was sufficient unto itself and was bound to the society enveloping it on all sides only by the tie which the military obligation of a fief-holder to a suzerain establishes.

Was it possible for the customs thus imported by the races of the north to develop a vast social and political state, powerful as to its extent even? Assuredly not: each elementary group each of the units necessary to form such a social *ensemble*, was certainly endowed with uncommon energy and vitality; but it remained obstinately isolated and hostile to its neighbors. No bond was possible between these groups unless perchance a moment should come when their unsatiated and always present taste for distant adventures should temporarily establish one, as was the case in the Crusades. But of a permanent organization, wherein each member was to accept and bear obligations, of general laws, there could be no more question than of the creation of a vast state in which all the resources should be put in common and directed toward one end.

Herein lay the evil, and the cause of destruction to the feudal system. It possessed, nevertheless, virtues and merits. We are indebted to it, conjointly with Christian sentiment, for the institution of the family, as it is conceived by modern nations, as well as for the importance of woman's place in human society.

If it was impossible to weld any one of the elementary groups to its neighbor, never, on the other hand, were these individual groups themselves so compactly constituted. "Never, in any other form of society, has the family been reduced to its simplest expression, never have husband, wife and children found themselves in such close union and so entirely separated from all other powerful and rival relationship. . . . While in his castle, the holder of a fief was associated with his wife and his children, who were almost his only equals, and who constituted his only intimate and permanent companionship. He doubtless often quitted his stronghold and led a brutal and

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adventurous life outside; but he was obliged to return. It was there that he shut himself up in times of peril.

"When the holder of a fief left his castle in quest of war and adventures, his wife stayed behind. . . . She remained in the castle as mistress, as *châtelaine*, representing her husband, entrusted, during his absence, with the defence of the honor of the fief. This lofty and almost sovereign position, in the very bosom of domestic life, often endowed the women of the feudal period with a dignity, a courage, a worth, a splendor, that have never been their portion elsewhere; and, without the least doubt, it powerfully contributed to their moral development and to the general improvement of their condition." In fact, according to the Germanic idea, woman was not destined solely to keep the house and spin the wool, as the Roman precept inculcated, but she was the faithful companion of man, through all the chances of life, in his military expeditions as well as under the family roof.

While the conquering race was thus creating for itself, and for itself alone, a social state suited to its instincts, its virtues and its defects, what was the condition of the conquered people?

We have already remarked that the municipalities survived the general breaking-up which followed the various invasions of the Franks, and for several centuries preserved at least a semblance of the old institutions, together with a certain measure of independence, which was, however, dearly disputed, and was in constant jeopardy. When finally, toward the eleventh century, evidences of stability appeared, history records the beginning of a sort of resurrection, an uplifting of the conquered race, which was destined to encounter many obstacles and to suffer more than one defeat, but which was never again wholly arrested.

When the holders of fiefs were definitely settled, when they had begun to organize their affairs on the basis of a more sedentary existence, abandoning the idea of living exclusively by plundering depredations, an autochthonous population might be seen grouping itself about the castles, and, under their protection, devoting itself to the cultivation of the soil. Agricultural labor being resumed with some regularity and partial security, a certain degree of comfort resulted therefrom which created more extended and varied wants; commerce and manufacturing began once more to thrive, and gave an added importance to these rural communities. From these sprang the burgs; hence in part also arose the communes, which must not be confounded with the ancient cities, for the communes appeared with and through feudalism.

The prosperity of these small communes became a source of wealth to the proprietors of the domain which sheltered them, and so they obtained certain privileges, which, without taking them out of the feudal domination, without conferring upon them genuine independence, nevertheless had as an aim and result to attract the population thither and increase the wealth. And, in its turn, this growth of population and wealth secured more valuable favors and more extended concessions.

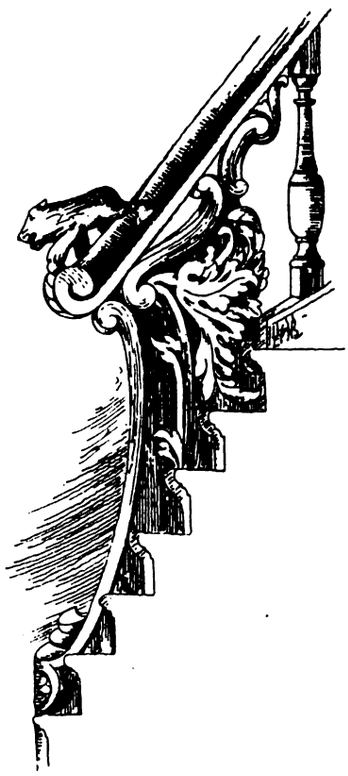
By the side of the old municipalities which had survived the invasion of the barbarians, genuine cities grew up: these were of inferior importance to begin with, but, owing to the development caused by commercial and industrial prosperity, they at length constituted considerable centres of population, and embraced a numerous and rich bourgeoisie. New towns and ancient cities alike, more independent than the burgs of which we have just spoken, at an early period showed themselves boldly belligerent, and they engaged in relentless warfare against the neighboring suzerains, whether cleric or lay, who sought to impose a too heavy yoke upon them.

The history of the struggles, mingled with many reverses, which the communes, towns or cities of Laon, Rheims, Vézelay, Soissons, Sens, Amiens and so many others engaged in, is well known, and we need not recount their history here. After the twelfth century, nearly all these struggles ended disastrously; some at first successfully resisted their immediate suzerains and extorted treaties and privileges from them; others were crushed out in bloodshed and conflagration. But they were at last doomed to pass under the royal authority, which had been constantly strengthening and had long aimed at the suppression of every rival power and the subordination of all feudal dominion, and which, in this bitter contest, was able to rally to its aid all the forces existing in the old population,—the sworn enemy of feudalism.

We have reviewed the changes which the civil society of the conquering and the conquered peoples underwent, from the fifth to the eleventh century; it remains for us to indicate the transformations which took place in the religious society during the same period.

[To be continued.]

ETRUSCAN ART.[1]—II.



IT is a characteristic of people who possess the sentiment of grandeur, to endeavor to affirm their power and perpetuate the remembrance of it in works which, without being imperishable, since nothing can be imperishable in this world, can yet stand the biting tooth of centuries and the triumphs of ages. The best sustained effort of a nation in the domain of art always consists in assuring to itself this kind of survival, to mark with an indelible trace the moment when its genius was in full flower, and it is for this that architecture will always be, *par excellence*, the national art, because it is the very one which best lends itself to satisfy this ambition, and can bring to bear upon a masterly and durable work the collective effort of an entire people. There are the Parthenon and the Temple of Augustus which, under different forms, still present to-day a wholly palpable image of the grandeur of Rome and of Greece. Nothing of Etruscan work analogous to these remains to us, probably because the Etruscans never conceived anything which could survive a catastrophe. It is not necessary to have read Volney, to know that Palmyra was an immense city, peopled with palaces, temples and colonnades. We meet everywhere in Southern Italy and in Greece ruins which speak to us of Magna Græcia, of the age of Augustus, and of the exquisite genius of the Grecian Republics. Neither the sands of the desert nor political storms have ruined the pyramids of Egypt. There remains nothing visible at this time at places where formerly were Memphis, Thebes, Babylon, Nineveh; but tradition has preserved to us in the matter of these cities the impression of monumental grandeur which, even at so great a distance, still touches our imaginations.

One of the reasons, moreover, why the Etruscans did not have architecture that was truly monumental in character is the manner in which they were compelled to understand municipal life, and it is this very reason which brought it about that it is in military architecture only that they have accomplished anything worthy of remark. In a spirit of defence (and this is a thing which helps to prove that they formed one cohesive race) they chose by preference, for the sites of their cities, lofty places, isolated and in the neighborhood of water-courses. Often, almost always, they found themselves ill at ease in narrow and confined places. Air was lacking. It was with difficulty that they could bring themselves to build their houses within the city's walls; and this is why, in spite of the respect they have for their dead, they ordinarily relegated the necropolis outside the walls of the city, exposing it thus to devastation and profanation. Perhaps the nature of their religion did not demand a vast scenic environment, and this would explain the absence of great temples in their towns. This last point, which may, after all, be only a supposition in the light of the present state of knowledge, deserves to be investigated to the bottom.

In any case, the general knowledge which we possess from this time forth on Etruscan art permits a classification of their works, and this classification M. Martha has, for the first time, worked out in a rational and intelligent fashion. I will, therefore, follow his method, and I will purposely include ceramics and mortuary jewelry, which in a secondary manner can interest those who are particularly occupied with architecture, although these categories are connected on certain sides with the general line of Etruscan art.

In the first place, there are the tombs, which must be studied if one desire to acquire a notion of antiquity. What one first remarks is that the Etruscans have not always practised inhumation to the exclusion of incineration. The most ancient tombs which we know are those, called *a pozzo* [well], of the Villanovan epoch, because it

[1] Continued from No. 794, page 167.

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is at Villanova, near Bologna, that the first were discovered. This tomb is in the form of a well, diminishing in diameter from top to bottom, which ordinarily measures a metre and a half in diameter by a metre and a quarter, or two metres and a half in depth. At the bottom of this well opens another, which is smaller, and serves as the receptacle for the urn which contains the ashes or the calcined bones. The form and richness of these urns is infinite. We can now affirm with certainty that these sepulchres belong to the first centuries of Etruscan history. Later, the method of inhumation was substituted for cremation, and one begins to find here and there caves in which are found outstretched skeletons, and finally a time is discovered when the cinerary urns disappear entirely, to give place to bodies embalmed and ordinarily enclosed in stone coffins, or laid out upon marble slabs.

Here it is that is made manifest the importance of ceramics and the arts of secondary importance in the study of the morals and general customs of a people. The Etruscans probably believed that man, after death, commences a second life, which was only a continuation of that which he had just finished. Their conception of the ideal hereafter could not go beyond this material resurrection. They were, therefore, in the habit of enclosing in the tombs the personal accessories of every-day life, the tools of trade, the arms and the objects for which the deceased had special predilection. The examination and analysis of these accessories is, therefore, of great use, especially in the case of pottery, jewelry and the arms and armor, for they furnish the means of following step by step the progress of the race. The oldest Villanovan tombs contain coarse vases, badly polished and without decoration, while little by little we see these funeral furnishings become more beautiful, more refined, until we find in the best cave-sepulchres — in those at Corneto, Orvieto and Volterra, especially — models of decoration which evince a very advanced degree of finish. In these last tombs, mural painting and sculpture play an important part. The designs with which the pots are covered served to initiate us into the belief and the manner of living of their possessors, for they often reproduce religious subjects or scenes from life, although one has to be on his guard in dealing with these documents, which more than once, in place of being Etruscan fabrications, may have been imported by foreign merchants. In like way, among the articles of the toilet, sometimes so admirably wrought and so rich, which might give us an approximate idea of the taste and elegance of the Etruscan ladies, there must be found many which have been brought from the outside world, and which would only serve, if we could exactly determine their origin, to prove the empire which exotic ideas exercised over the customs of the Etruscans. Let us not forget, in short, that the Greek merchant communities at a given moment must have occupied important places in the maritime cities of Etruria. Certain Etruscan cities, like Cerea, for example, had treasuries in the sanctuary at Delphi. When Demaretes was driven out of Corinth by a revolution, he established himself in Tarquinii, in Tuscany, with the apparent certainty that he would find there many of his compatriots. Later, when the Carthaginians involved Etruria in an anti-Hellenic league, Tarquin, son of Demaretes, abandoned the city which his father had chosen, and, with a great number of Corinthians, fled to Rome, where, having become king, he made war against Etruria, to punish it for having espoused the quarrel of Carthage against Greece. At this time, consequently, the influence of the Oriental races in Etruria, and the commerce which brought this nation in contact with Grecian merchants, are beyond dispute. Moreover, one recognizes many amphoras ornamented with extremely fine and delicate designs, but bearing the signatures of Greek artists, which clearly show that the greater part of the objects having artistic worth are of exotic origin. I will mention at hazard, among the fine amphoras collected in the Gregorian Museum at Rome, one where is represented Achilles and Ajax at play, which is signed by the name of Enakias.

But let us leave these details, which, nevertheless, are full of interest, to speak with more definiteness of the development of Etruscan architecture, whose merits the Latin authors, beginning with Vitruvius, have so extraordinarily exaggerated. Let us first see how the Etruscans proceeded in their choice of materials. They had at their disposal granite of the island of Elba and island of Giglio, and the marble of Carrara, yet they never employed them. They preferred the volcanic and common calcareous stones, the working of which presents little difficulty, and, to crown their misfortune, they made great use of wood, especially in the framework, which exposed their buildings to the ravages of the flames and the deteriorating action of the weather. Is not this a proof that in their construction they did not aim at durability, and that they had the feeling that their works were not worthy of being shown to posterity?

On the other hand, they showed some capacity in fashioning rock *in situ*, especially when it was a question of rendering inaccessible the heights where they had built their cities. At other times they dug out tombs in the living rock, and at the entrance of these tombs cut façades and doorways, which present a certain interest, without, however, ever attaining the exceptional value of a monument.

In built-up work, the Etruscan system can be classified into three orders: 1. The polygonal order, where the stones are quarried in such a manner as to make four, five or six sided polygons, models of which are seen in the walls of a great number of central Italian cities, notably at Saturnia, at Pyrgi, at Cosa, at Prœneste, Norba, Alatrium, Signia, Ferentinum and at Alba Marsoum, upon both sides of the Tiber. 2. The irregular quadrangular arrangement, where the faces of the blocks have the form of a tetrahedron, cut without fixed rule — an arrangement of which numberless examples can be seen at Rusellue, Volterra, Cortona and at Vetulonii; and 3. Finally, the quadrangular arrangement, where the blocks have all the same form and dimensions; these are cut to right angles, plumb on all their faces, and laid so as to form even beds, parallel and with rectilinear joints. This fashion prevailed at Sutrium, Falerii and Ardea. It is by one of these three characteristic signs that one may readily recognize a wall of Etruscan origin, in which we always remark, also, that the blocks are laid one upon the other without mortar or ties.

The Etruscans, in the first place, practised the trabeate system of covering, which consists, as everybody knows, in placing stones horizontally upon vertical supports; but ordinarily the lintels and the architraves were of wood. Sometimes, nevertheless, they employed for this purpose monoliths of quite large dimensions. In one dome-covered tomb at Quinto-Fiorentino, near Florence, we see a doorway surmounted by a slab which measures 1½ m. long by .404 m. thick and 2.45 m. wide. In the matter of vaults they had not only the vault formed by corbels, but the vault with voussoirs. As is well-known the first style is composed of horizontal layers which overhang the ones below in such manner as to narrow, little by little, the opening, which is finally closed by a keystone. Sometimes the corbelling is almost rectilinear, and gives to the doorway an almost triangular shape. Sometimes the shape becomes slightly pointed. This system was known to the Greeks, Chaldeans and Egyptians, so that it is wrong to attribute its invention to the Etruscans, as certain authors have done. The vault with the voussoirs is a vault properly so-called, because it is formed of pieces with oblique joints, wedge-shaped, so that they are supported one against another. It appears that in the later days of their prosperity the Etruscans excelled in using this kind of vaulting, which is one of the most praiseworthy methods used in architecture from the point of view of elegance as well as solidity; but the use of this method of closing an opening does not date beyond the eighth or ninth century, and many reasons lead us to believe that it was not invented on the spot, but that it was introduced by the Phœnicians, to whom Italy owes so much instruction. In fact, Perrot and Chipiez declare, in their "*History of Art*," that the conception of the vault belongs to the Orient; but one can at least do the Etruscans justice by believing that it was through them that the vault became part of the patrimony of Occidental art. They are the ones who received the tradition from the Phœnicians and transmitted it to the Romans, who in their turn bequeathed it to us. It is almost the only thing which modern architecture owes to the Etruscans, who, however, themselves were indebted for it to the Orient.

As to the general configuration of their buildings, the Etruscans at first followed the circular form, then they adopted rectangular shapes. Whence comes this change, and why was the curvilinear form of plan first preferred in Etruria? In the first place, we know that the primitive habitation of all races had the circular form like the hut; but religious rites were not stranger to this usage. In the orientation of cities, sanctuaries and altars, the Etruscans, like the Greeks and Romans, followed principles consecrated by superstition. They consulted presages, and to aid these the priest ascended to the selected place, then with a curved stick (*lituus*) he traced above his head two lines crossing each other perpendicularly, the one extending from the north to south (*cardo*), the other from east to west (*decumanus*). The celestial vault thus defined was called a temple (*templum*). This function is often represented in certain Etruscan designs. The edifice when built must naturally correspond to the ideal form of the heavens, which was for the ancients the blue dome of heaven. This is one of the reasons why during the first centuries the buildings of Etruria were all more or less circular. Later, when they began to use wood in the framework of the roofs, they were forced to perceive that the rectangular form was more suitable to this mode of construction, and a reform took place without violating the religious traditions, for it was sufficiently *de rigueur* to construct a rectangle by joining the extremities of the *cardo* and the *decumanus* drawn by the priest. But in my opinion the principal cause of this innovation lies in the Grecian influence and upon this point I am quite of the opinion of M. Martha. It is known, in short, that Grecian architecture is exclusively rectilinear, and from the day when the Hellenic artists were called to work in Etruria they did not fail to make use of their own methods, superior to that used by the natives. In like manner as to the use of the column, the Etruscans in all probability learned everything from the Greeks. Before these reached Etruria, the isolated column as an element of support was almost unknown in architecture. But to adapt the Grecian column to their dwarfed and graceless style, the Etruscans made it more squat, more massive, more awkward. Then they made a jumble of the orders, and formed that which is called in architecture the Tuscan column, a hybrid conception which is connected with the Doric, through the curvature of its capital and its abacus and with the Ionic by its die, its torus, its astragals and listels which surround the shaft especially at its base.

As to details, Etruscan architecture has no real style. It united things at haphazard, without rule and without principle, and this irrational confusion ended in a disorderly eclecticism. The doors are of four kinds, two rectilinear, one of these being rectangular, the other trapezoidal; two curvilinear, one of these being the pointed door of the cellarways, built corbel fashion, and the other the

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full-centred doorway which one sometimes meets in the tombs and upon urns. As for the windows we notice here the same lack of discipline, the same want of taste and originality. What particularly strikes one in all the details is the variety and the richness of the mouldings used on buildings of the last epoch. The Etruscans evidently borrowed from all the peoples of the East, whose passion for imitation they emulated, feeling the need of relieving the simplicity of their own lines by multiplying ornaments. They wrought their stone with the chisel and did not always stop at simple mouldings. Often they added figures to their decorations. On the pediment of a tomb at Sovana, for instance, there can be seen a marine divinity between two winged genii, and at Norchia the pediment of a façade conceived in the Greek style, in which were inserted figures. Polychromy, rather than sculpture, held a leading place in the decoration of the interior of the tombs. Almost all the funerary urns were painted, and the walls of certain tombs which belonged to personages of distinction were ornamented at Corneto and Orvieto, amongst other places, with paintings very skilfully executed. Finally, to end this portion of my study, I must say that terra-cotta work was also scattered with great profusion through Etruscan buildings.

Funerary architecture is that which had the most interest, from an artistic point of view, for the Etruscans. The chapters which M. Martha consecrates to this study are the most interesting, instructive and the most substantial in his book. He remarks with much justice that the Etruscans fell into the same contradiction as the Greeks, who had the conception of a soul which separated from the body after death to flit away to another region, and who, nevertheless, worshipped the corpse to such a point as to believe that the man was always living in the ashes of his body. This is why they interred with him his familiar animals, his tools and toilet articles, his arms and food. Every year at a stated time they came to share a repast with him. The departed spirits were often represented upon the bas-reliefs or the paintings in Etruria. Like the Greeks, the Etruscans believed that the departed spirits did not remain in the tombs. On the contrary they assembled far from the bodies in mysterious regions. The designs which present to us the different conceptions which Etruscans had of death and resurrection turn about the ideas which I have just mentioned. Sometimes we see relatives mourning about the bed of a dying man; tears flow in abundance; gestures of despair are multiplied, and this scene has usually for its object to rejoice the *manes* of the defunct and flatter his posthumous vanity. Again the relative that they mourn is represented upon a triumphal car, as in the celebrated urn in the Museum of Volterra. On another urn in the same museum, we see a spirit on horseback drawn by Charon and followed by a relative, who gives evidence of the most poignant grief. It is natural, then, with a people who had so high a conception of death that funerary works should be conceived in the most exalted style which the artistic knowledge of the times allowed. And one may say, in short, that all the faculties of embellishment of which the Etruscans were capable were brought into operation for the benefit of their tombs. These tombs, according to the locality and epoch, took the most diverse forms. Sometimes they consist of a pit, at the bottom of which are arranged the cinerary urns, and sometimes they have some resemblance to the dolmen of France and England; that is to say, they were composed of four stones set upright and covered by a single stone. Sometimes, also, they were perched like swallows' nests along the cliffs upon which the cities were built. They dug out, in full view half-way up these cliffs, niches destined to receive the urns or coffins. But the real Etruscan tomb, that which is most often met with, is that styled the cave tomb. It is very ancient, since at Corneto some have been found which date to the seventh century. These are of various dimensions. Generally it is very low in the stud, so low that a man of middle size can hardly stand upright. All the openings of the structures which have survived are, moreover, very low, and this has led to the conjecture that the Etruscans were for the most part of small size. Sometimes the caves followed one another and formed in some degree a complete apartment, and sometimes, also, several tombs dug in the thickness of the same hillock connected with one another by narrow and winding passages. Some of these tombs are decorated with a remarkable degree of luxury. About the cave there are benches of marble upon which were laid the coffins, and above the coffins were traced paintings which in certain tombs are of great sumptuousness. It would be impossible to give a complete enumeration of the objects which relatives deposited about the coffins. They are generally vases of clay or bronze, tripods, censers, articles of toilet, jewels, arms. Each dead man thus found, in the opinion of the survivors, the familiar articles of luxury and often his favorite games — there have been sometimes found dice and chessmen. The nature of the objects varies in their richness according to the age, the sex and the rank of the deceased. For external sign the Etruscan tombs often affected the form of tumuli. One detects them by the swellings of the ground. Then this manner of marking the place devoted to tombs was perfected, and they built at length square enclosures, towers, and finally veritable mausoleums. It can be said that the Etruscan tumulus varies from the simple hillock at Corneto, which is nothing more than a slight rise in the ground enclosed within a circular wall, up to the tomb of Porsenna at Chiusi, of which Varro has left us the description, and which consisted of a square block of cut stone, each face measuring 300 feet in length by 50 in height. Above this enormous pedestal rose five pyramids, one at each corner and one in the middle, each being 150 feet in height, and having a width of 75 feet at the base. This brought the total height of the monument to 125 metres. There still can be seen at Albano, near Rome, the remains of a monument built after this fashion, although of smaller dimensions, which local tradition attributes to Porsenna, who, apparently, must have died twice. Finally, I ought also to mention the practice which the Etruscans had of marking the presence of tombs by funeral cippi or stelæ, whose form had infinite variety. Some have been found spherical, pyramidal, oblong, polished, sculptured, and some often bore figures and inscriptions. In certain Etruscan cities are discovered so large a number of these stones that they have been used to decorate the walls and alleys of gardens, and strangers can easily procure them for a slight sum.

The military architecture of the Etruscans offers only a retrospective interest, and cannot furnish any instruction for modern military science. Thus one may affirm that the art of fortifying cities was fairly well-known throughout all Etruria. The surrounding walls were solidly built and arranged so as to serve as a rampart and platform for the defenders. More than once we find fortifications built after the polygonal system, or cut from distance to distance, as at Cosa, by quite high towers, which proves, moreover, that Etruscan cities were fortified in such a way as to resist advantageously all means of attack in use at that time; thus, some of them — among others Falerii, for instance, Volsinii and Veii — opposed to the Romans a vigorous resistence, and were only vanquished by strategy after a long siege.

As for works of canalization and diking, the Etruscans must have acquired a notable degree of perfection. In constructing the railroads over the Tuscan marshes, subterranean works of canalization have been discovered, which were executed by the Etruscans for the purpose of making salubrious this part of the country in which the climate is so deadly and where the fever to-day kills so many people yearly, for the simple reason that these works have fallen into disrepair. They reclaimed the mouths of the Po, which had become marshy in the progress of centuries, and straightened the mouth of the Arno. They also built, or fixed the rules for building, the outlet of Lago Albano, which pierces the mountain with a length of two kilometres. As for sewers, they understood them admirably. They dug issues in the tufa for the outlet of useless water, and to-day we still see these ditches on the hillsides where formerly were Etruscan cities, as at Orvieto for example. There is reason for believing that the famous Cuniculum which permitted Camillus to put an end in so marvellous a way to the siege of Veii was nothing more nor less than a sewer. According to tradition Fidenæ must have been twice taken by means of the same strategy. But in this kind of work the *chef-d'œuvre* of Etruscan architecture is, surely, the Cloaca Maxima at Rome.

Although much has been written as to the religious architecture of the Etruscans, there are many points which still remain obscure. As it has been supposed that everything which the Romans knew in the art of construction they learned from the inhabitants of Etruria, students have set out from this point to discover in the Roman edifices the laws of Etruscan architecture, and this false idea has given rise to many misconceptions. As in the matter of the orientation of temples, for instance, people have been deceived. For a long time they believed that the Etruscan temples had a particular orientation. Now see, they have just uncovered the ruins of two sanctuaries at Orvieto (Volsinii) and at Civita Castellana (Falerii), and of these two sanctuaries the first had the façade turned to the south, while the other one faced to the southwest. M. Martha explains this difference in a plausible manner. The gods were thought to inhabit different points of the heavens, and the orientation varied, therefore, according to the god to whom the sanctuary was dedicated; but, after all, this is only a conjecture. In like way as to that which concerns the plan of the temple, opinions are not yet fixed. The opinion of Vitruvius, according to whom the form of the Etruscan temple ordinarily approached the square, is still believed in. As for the interior division, we do not know in a definite way how the Etruscans proceeded, and the best way is to suppose that they did not always arrange them in the same fashion, and that plans changed according to localities, according to the amount of money at the disposal of the builders, and probably, also, as M. Martha says, according to the divinity to whom the temple was consecrated. Indications which are drawn from sarcophagi and cinerary urns, where we see religious designs, are not sure guides, because these designs, often executed by foreign artists, may very easily reproduce religious edifices which have nothing to do with Etruria. The only thing which, unfortunately, is certain, is, as I have said, that no Etruscan building was built under such conditions of solidity and grandeur as to allow it to survive the centuries and the catastrophes of history.

As to private architecture, it is certain that the Etruscans did not take everything from the Greeks. The atrium, which the Romans borrowed from them, is their own invention. The atrium was the family hearth, the place of gathering, the reception-room, and about the atrium were arranged the other smaller rooms of the dwelling, whose number and size varied according to the social standing of the proprietors. When M. Martha wrote his book, the latest results of the excavations at Marzabotto were not yet known. These have thrown a great light upon the private dwelling of the Etruscans, and have made it possible to establish that the fundamental principles of municipal life and domestic architecture were taught by the

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Etruscans to the Romans. When one knows what a Roman house is, one understands how an Etruscan house was divided. It must not be forgotten to render homage to the Etruscans for an original invention: I mean the overhanging roof — which serves to protect the walls of the house in wet weather — which remained the rule of Tuscan architecture to such a point that one does not find in all Tuscany a great palace which is not covered with this kind of roof.

H. MERRU.

(To be continued.)

ELECTRIC-LIGHT WIRING INSTALLATIONS FROM A MECHANICAL STANDPOINT.[1]

"All the Modern Improvements." — No. 23.

THE question is frequently asked by architects and owners of buildings, "Can electric-lights be installed with safety from fire, and will the installation give results that are satisfactory and permanent?"

The improvements made recently in materials and methods, allow us to answer in the affirmative.

Nearly all the troubles in electric-lighting plants have been caused by defective wiring, and on that part of the lighting system, more than on any other, depends the success of future service.

It may not be amiss to compare the early date of the art of electric-light wiring with the present, and the probable future advancement in the methods of installation.

In the early days of electric-lighting, a wire, covered with cotton, and saturated with paraffine, was used; this in a short time was replaced by a wire covered with cotton and white lead, known as "Underwriters' Wire"; the insulation was supposed to be fireproof, and on that account, decreased the chances of fire; but while the insulation was non-inflammable, it readily absorbed moisture, which caused excessive leakage and some incipient fire. A few carefully conducted tests and experiments, proved that "protection against moisture was prevention of fire," and henceforth a moisture-proof wire was demanded, and the manufacturers in that line now offer us such high grade insulations as "Grimshaw White Core," "Okonite," and others.

Improvements in the method of installing the wires were also made. Formerly buildings in the course of erection were equipped with the fireproof insulated wire encased in wood mouldings, or inserted in zinc or lead tubes, but with the appearance of the moisture-proof insulated wire, the former insulation was discarded for the latter, and instead of inserting the wire in zinc and lead tubes, it was fastened directly to the side walls and ceilings, and covered with plaster. The cut-outs and switches are now mounted on porcelain and slate, instead of on wood as formerly. More attention was given to the equalization of electrical pressure on conductors.

While these changes helped to improve the work, it was still a matter of chance that wires placed in a new building and imbedded in plaster gave satisfactory results. Conditions that could not be controlled increased the difficulties. A cut from the plasterer's trowel or a blow from a hammer on the insulation, destroyed its utility; and though the wires might be tested, the fault in some cases would not appear till the building was completed, when to remedy the defect, it would be necessary to cut the plaster to obtain access to the wires, or discard the faulty circuits and rewire on the surface of the plaster, in either case disfiguring the walls and causing extreme annoyance. Again, should changes be contemplated in the wiring, such as an increase of lights on different outlets, or a change to a lighting system where lamps of a lower voltage are used, we are once more confronted by work that is totally inaccessible, and to make the changes required, are forced to have recourse to the same expedients as stated before, and with the same results.

Although wiring installations gave better results than formerly, there was yet a large field for improvement; access to the conductors became absolutely necessary for controlling the system, making changes and rectifying defects which may occur after the work is finished and the building completed, and to do so without cutting or defacing the walls, or interfering with the other portion of the lighting system.

It is evident that as long as the conductors are inaccessible, just so long will the results be uncertain, and as it is our aim to eliminate the objectionable features and secure a wiring system that possesses accessibility and freedom from fire and leakage, the question is: "What is necessary?" To which I reply: A high grade, moisture-proof insulated wire, together with a system of "raceways" or conduits, and a complete line of "fishing" or junction boxes.

The conduits should be of ample size, with smooth inner surface, so that wires can be easily inserted or withdrawn; they should be constructed of materials that will not stain or exude through plaster or paint, and should be non-combustible and moisture-proof; the action of lime or cement, or extreme variations of temperature, should have no effect.

The "fishing" or junction boxes should be equipped with shoulders or sockets for the entrance of the tubes, thereby making them a part of the conduit system, and preserving the continuity which is so essential in a system of this kind, and also enabling us to make the joints moisture-proof.

All cut-outs when single or in groups, should be located in the junction boxes.

The conduits should be installed in a workmanlike manner; they should not be run or looped from one outlet to another, but branches should lead to each outlet from the main conduit carrying the wire for that circuit, and at right angles with same; at the intersection of the branch and main conduits, a "fishing" box should be placed; the main conduits may be located in the cornice near the ceiling, or behind the base-board at the floor with the cover of the junction-box flush with the surface, thus keeping them out of sight and at the same time easy of access. The location of the conduits should be uniform on the different floors throughout the building.

An extra covering of metal should be placed on the conduits at the outlets, to keep them securely fastened to the wall, protect the ends, and take off the strain when inserting or withdrawing wires.

With a proper conduit and a complete system of junction-boxes, it becomes unnecessary to insert a single wire (with the exception of the main feeders) until after the installation of conduits is complete, and the building finished; the insertion of strings or drawing lines is equally unnecessary, for, should the string or wire break near the middle of its length, that circuit would be as inaccessible as though it were imbedded directly in the plaster.

The main wires can be inserted in the conduits at the time of installing the same, and placed in recesses in the walls, the covers of the recesses to be detachable.

In hotels, apartment-houses, office-buildings and other structures used for similar purposes, the largest part of the wires and conduits, together with the cut-outs and junction-boxes, can be located in the halls, so that in case of alterations or additions being required, the occupants of the rooms will not be annoyed.

Considering the advantages a wiring system of this kind possesses over previous methods, a comparison in cost will be favorable to the conduit system.

The indefinite manner in which electric-light wires are sometimes installed, has often placed the owner of a building, who contemplates changes, at the mercy of the company or contractors, under whose supervision the work was installed; they in turn delegate the foreman who had charge of the work in that particular building to attend to the changes required, and he usually tries to obtain the services of some of the wiremen who worked on the installation, because "they know where the wires lie."

It is apparent that the employment of a complete conduit system obviates these troubles, and also that instead of equipping a building with a wiring system suitable only for a special company's system of lighting, it can be fitted with conduits for electric-lighting, regardless of system, and in fact, similar to piping the building for gas; and should a change in system be desired in the future where lamps of a lower voltage are used, the change can be made without cutting or defacing the walls, and at a nominal cost, whereas, should this change be required in a building where the wires are imbedded in plaster, it would practically necessitate the rewiring of the entire plant, and at a cost at least equal to that of the original work.

While a conduit of good insulation is necessary, it should not be regarded as extra insulation or protection, to an extent where the insulation directly on the wire is decreased, it should only be treated as a medium to accessibility.

"Prevention is better than cure," and for that reason only one wire should be placed in a conduit. Although the fusible metal cut-out will usually break the circuit in case of a "cross," still, it is safer to guard against any formation of this nature, by placing each wire in a separate tube, than to invite it by insufficiently insulated wire, or inserting wires of different polarity in the same tube.

Only the best is good enough, and will in the end be the cheapest for all branches of electric-lighting.

The coöperation of architects is not only desirable, but necessary for the future advancement of electric-light installation work, and to their credit be it said, that they are ever ready to extend their help; already have their suggestions been of value to us, and should the necessity of securing separate recesses be explained, they will, without doubt, make provision for the work similar to that made for gas, steam, and water pipes.

[1] Portions of a paper by Mr. Augustus Noll, read at the National Electric-light Convention, at Providence, R. I.

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THE NOMENCLATURE OF BRICKS.[1]

A View at Loches. From "*L'Art Gothique.*"

MR. PRESIDENT AND MEMBERS, — Your committee, appointed by the Association in convention at Philadelphia to recommend to this Association for its consideration a brick nomenclature, beg leave to submit the following report:

Your committee has sent out a large number of letters, reaching almost every important brick centre in the United States, soliciting the different names and descriptions applied to the various kinds of brick made in the several States and Territories.

To these inquiries the members of the craft have, almost universally, given full and complete replies, and at the same time expressing a great desire that the convention might arrive at a nomenclature that would be universally adopted.

We find that many of the same kinds of brick are known by a great variety of names, not only in different but often in the same localities.

We will therefore describe some of the leading kinds of brick, submitting at the same time the names applied to each, with recommendations.

The first division will be as to the degree of hardness.

First. Brick not hard enough for the outside course of outside walls are variously known as soft, salmon, backing-up, pale, light, chimneys, filling-in, inside-wall and foundry brick. As anything softer than salmon-brick is not, properly speaking, a brick, we recommend that all brick not hard enough to stand exposure in the outside of buildings be known as "salmon brick."

Second. Brick burned hard enough for the outside course of outside walls, not selected, are known as hard, common, building, paving, hard building, outside, hard red, strictly hard, select hard, rough hard, hard washed, kiln run hard, common hard and kiln run hard, one-half smooth, one-half rough. We recommend that all brick burned hard enough for the outside walls of buildings, but not selected or graded, be known as "hard kiln run."

Third. Brick set from the top of the arches to the bottom of the kiln are known as arch, bench, eye, over-hangers, foundation, cistern, cellar and hard rough brick. We recommend that all brick set in the arches or benches, which are discolored, broken or twisted in the burning, be known as "arch brick."

Fourth. Brick selected for the fronts or the outside course of outside walls are known as fall, outside, select common, reds, hard fronts, fronts, veneering, smooth hard, straight hard, common fronts, light hard, chimney tops, liners, select, select reds, headers, stretchers, dark fronts, stock, select hard, side and back walls, and Croton front brick. We recommend that common brick selected for outside walls of buildings be known as "front brick"; No. 1, light burned; No. 2, medium burned; No. 3, hardest burned.

Fifth. Brick used for sidewalks are known as pavers, sidewalk, hard, selected hard, hard burned and yard pavers. We recommend that such brick be known as "sidewalk brick."

Sixth. We recommend that "sewer-brick" shall mean good, straight, hard-burned brick.

Seventh. We recommend that "foundation brick" shall mean a good, hard, well-burned but not selected brick.

Eighth. We find that all the brick in the kiln (not strictly soft) are known as kiln run. Merchantable — one-half select and one-half soft. Merchantable — one-third select, one-third hard and one-third soft. Building brick, common building, average brick, and two-third front, one-third salmon. We recommend that all the brick in the kiln not strictly soft, taken together, be known as "merchantable brick."

Ninth. We find in two or three localities brick moulded in sand by machine or hand, not repressed but handled with extra care, burned in the best part of the kiln, and well selected for fronts are called headers, stretchers and Croton fronts. We see no reason why those bricks should not be classed with common brick and known as "front brick," which we recommend.

Tenth. We recommend that all the brick that are set in the kiln when burned be known as "kiln-run brick."

Eleventh. All the brick left in the kiln after the front brick, sidewalk brick and sewer brick are taken out of the kiln are variously called inside brick, sewer, cistern, inside walls, double coal, shrunkery, clinkers, rough kiln run, and backing-up. We recommend that all such brick be known as "rough kiln run."

Twelfth. Brick made especially for the fronts of buildings by repressing or dry-pressing are known as pressed, repressed, stock, fronts, sand-pressed, dry-press, line-brick, stretchers, headers and face. We recommend that all brick made by either the repress or the dry-press process, and selected or graded for the fronts of buildings be known and designated as "press brick."

We further recommend that press brick be graded as follows: First, as to color. The numerals No. 1, No. 2, No. 3, No. 4, etc., shall designate color; No. 1 being the lighter shade, and No. 2 the next shade darker, and so on for any number of shades.

Second, as to quality. Press brick shall be designated by the ordinals, as first grade, second grade and so on. We then have press brick No. 1 first grade, No. 2 first grade, and so on for any number of shades. No. 1 second grade, No. 2 second grade, and so on for any number of shades. No. 1 third grade, No. 2 third grade and so on for any number of shades or qualities. The numerals always denoting the color or shade, and the ordinals always denoting the grade. Extremely light shades may be known as No. 0 and No. 00.

We further recommend that all dry-press or repress brick, not selected for fronts, be known as "common brick," and be subjected to the same classification.

Thirteenth. In many localities the term stock brick is applied to a brick moulded either by hand or machine in rough coarse sand, and repressed without rubbing, so as to give the brick a rough sand finish. We recommend that such brick be known as "stock brick."

Fourteenth. We find a great many varieties of names applied to moulded or ornamental brick, among which are the terms stretchers, headers, bay-windows, trimmers, cornice, etc. We recommend that brick other than square brick be known as "ornamental brick," for the various kinds of which the committee is not ready to suggest a nomenclature.

Fifteenth. We find that the term "heads" and "stretchers" are often applied to the manner in which the green brick are set in the kiln; as you enter the kiln you see the ends of the headers and the sides of the stretchers.

Sixteenth. "Platting," "splatting" and "flatting" are terms applied to one or more courses of brick placed on top of a green kiln to hold the heat when burning. These brick are often set on edge or laid singly flat as in paving, and often two courses are laid flat one above the other. We recommend that all brick used to cover the top of a green kiln set for burning be designated as "platting."

Since preparing the foregoing, we have received a number of valuable letters on the subject of brick nomenclature, and representing many different localities, and because of the incompleteness of this report, we recommend that a further investigation should be made and reported to the Association at its next convention.

W. A. Eudaly, *Chairman.*
D. V. Purington,
William H. Brush, *Committee.*

[1] Report of Committee to the National Brick Manufacturers' Association in Convention at Indianapolis, Indiana, Thursday, January 22, 1890, on Brick Nomenclature.

EMMANUEL FRÉMIET.[1] — VI.

Falconer and Lady, Fremiet, Sculptor.

During the progress of this work for the Louvre Lefuel came out from time to time to see it and was delighted. "It was a real god-send, I can assure you. All amounting to seven thousand dollars."

This commission consisted of a group of three female figures holding up a large ball, and twelve of the most hideous monsters, all for a fountain, that Frémiet could conceive of. What luck for the whole family of Saurians! Their time had really come, and this portion of the paleontological creation have danced and spurted water ever since in joyous resurrection. Nor were they made on an unscientific basis, as the ever zealous professor had intimated in regard to the plesiosaurus, but from nature, from small objects, enlarged with the assistance of a microscope, and with all the exactitude of the sculptor's care.

Frémiet also made for Lefuel four large birds, a pelican, marabout, moufflon and loo, as well as an ostrich and crocodile, receiving one thousand dollars for the models of the first four. All this work was cast in iron and sent to some estate in the provinces, the sculptor never knowing where.

The *Salon* of 1873, contained from Frémiet's hands, a "Falconer

[1] Continued from No. 796, page 204.

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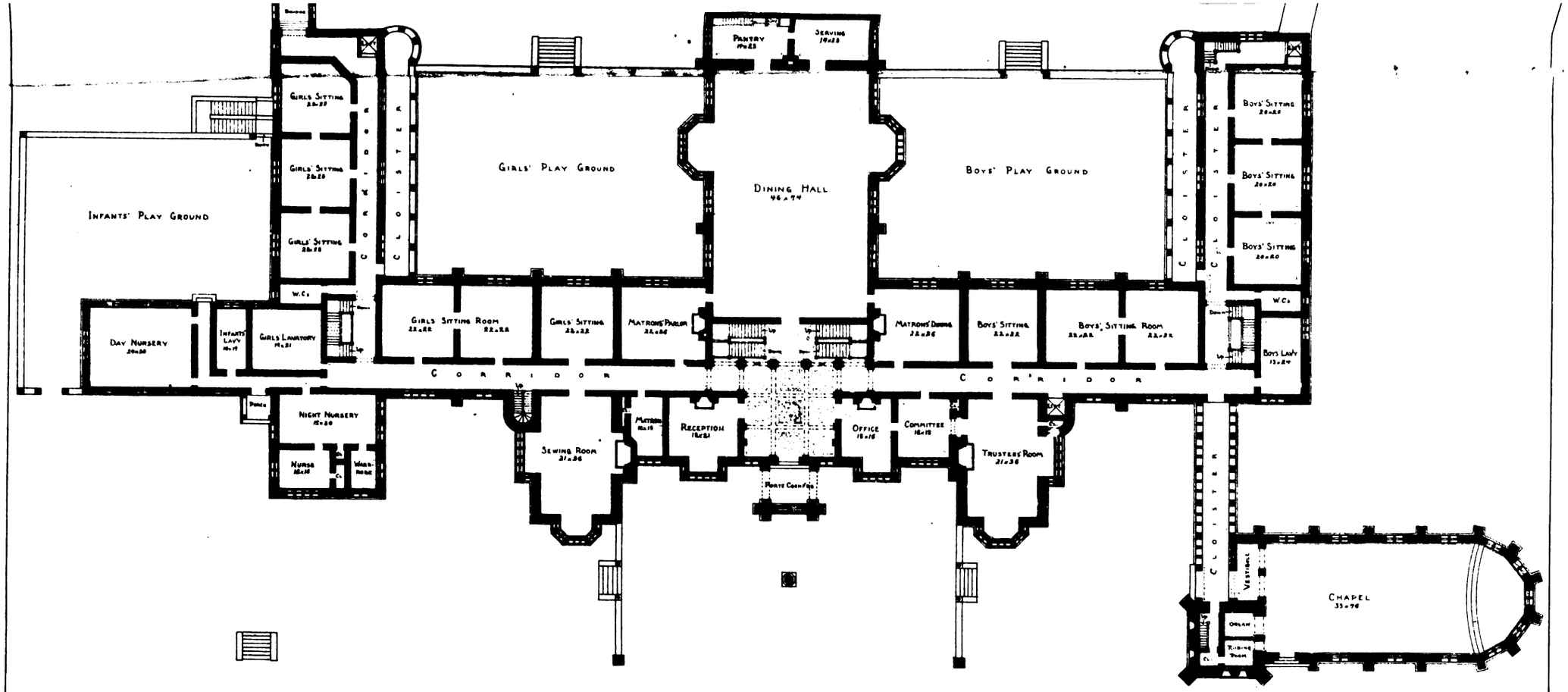

First Floor Plan

Design for Troy Orphan Asylum

Heliotype Printing Co. Boston

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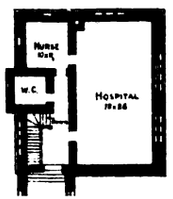

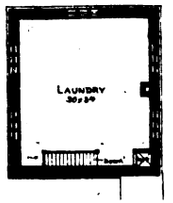

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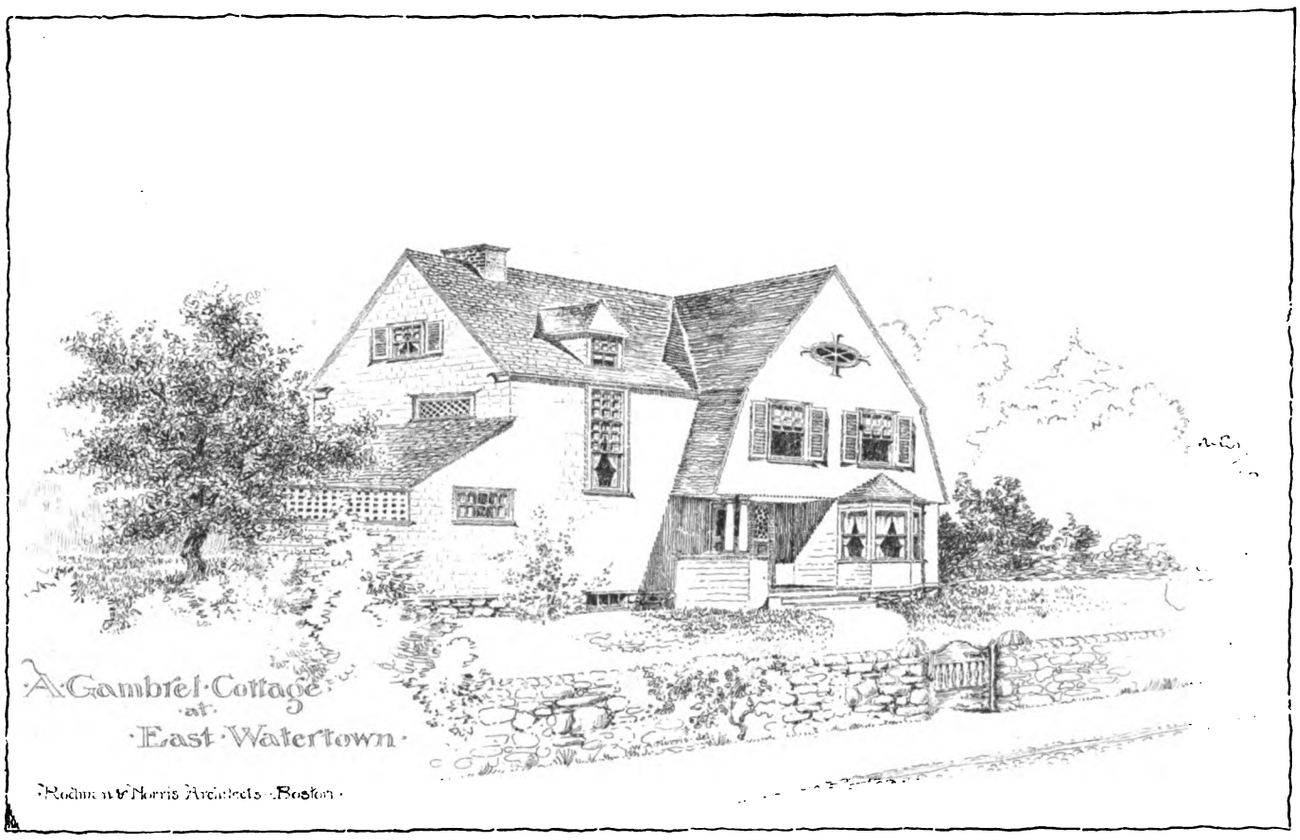

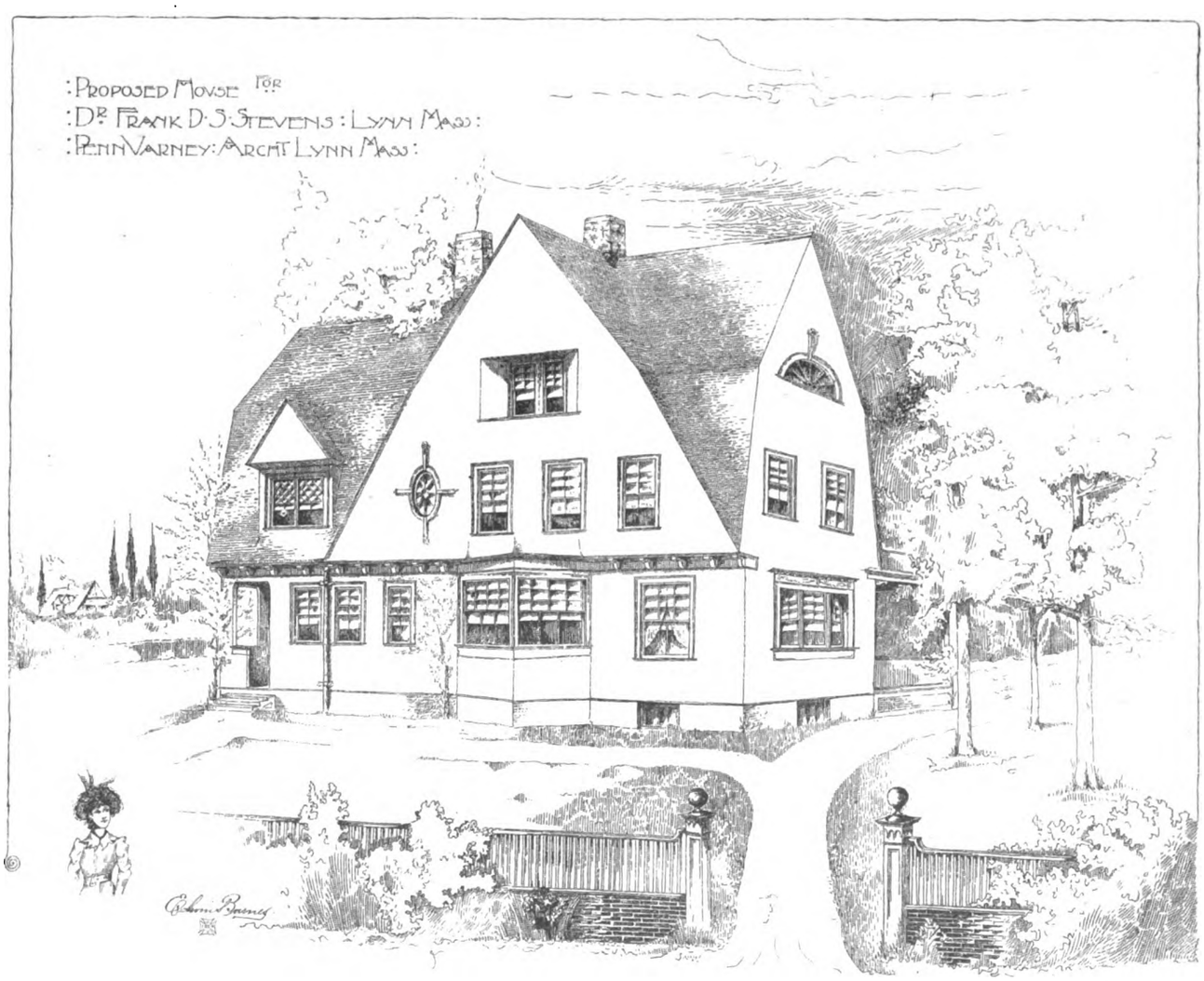

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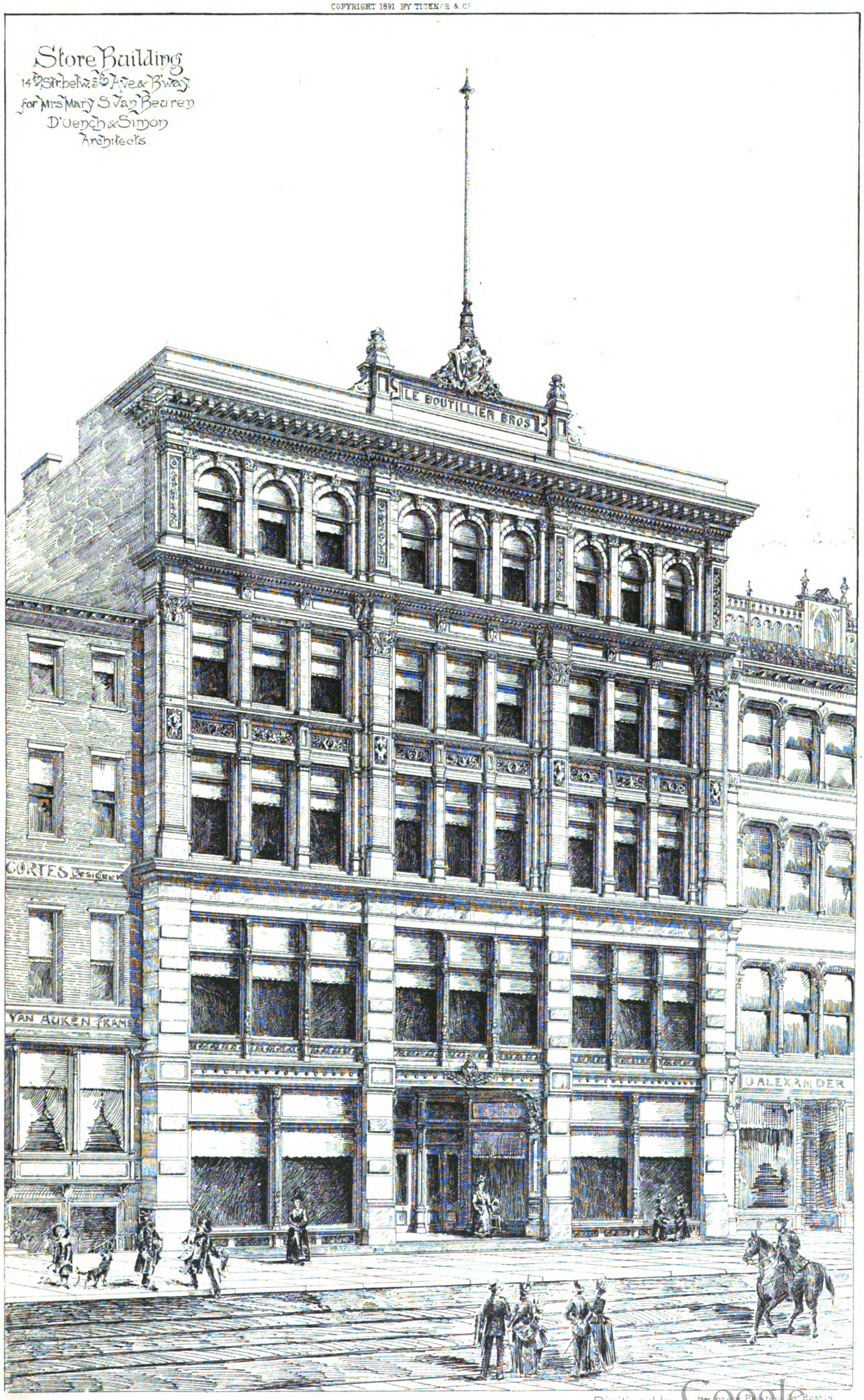
Store Building
14th St. bet. 3d & 4th Ave. & B'way
for Mrs Mary S. Van Beuren
D'Uench & Simon
Architects



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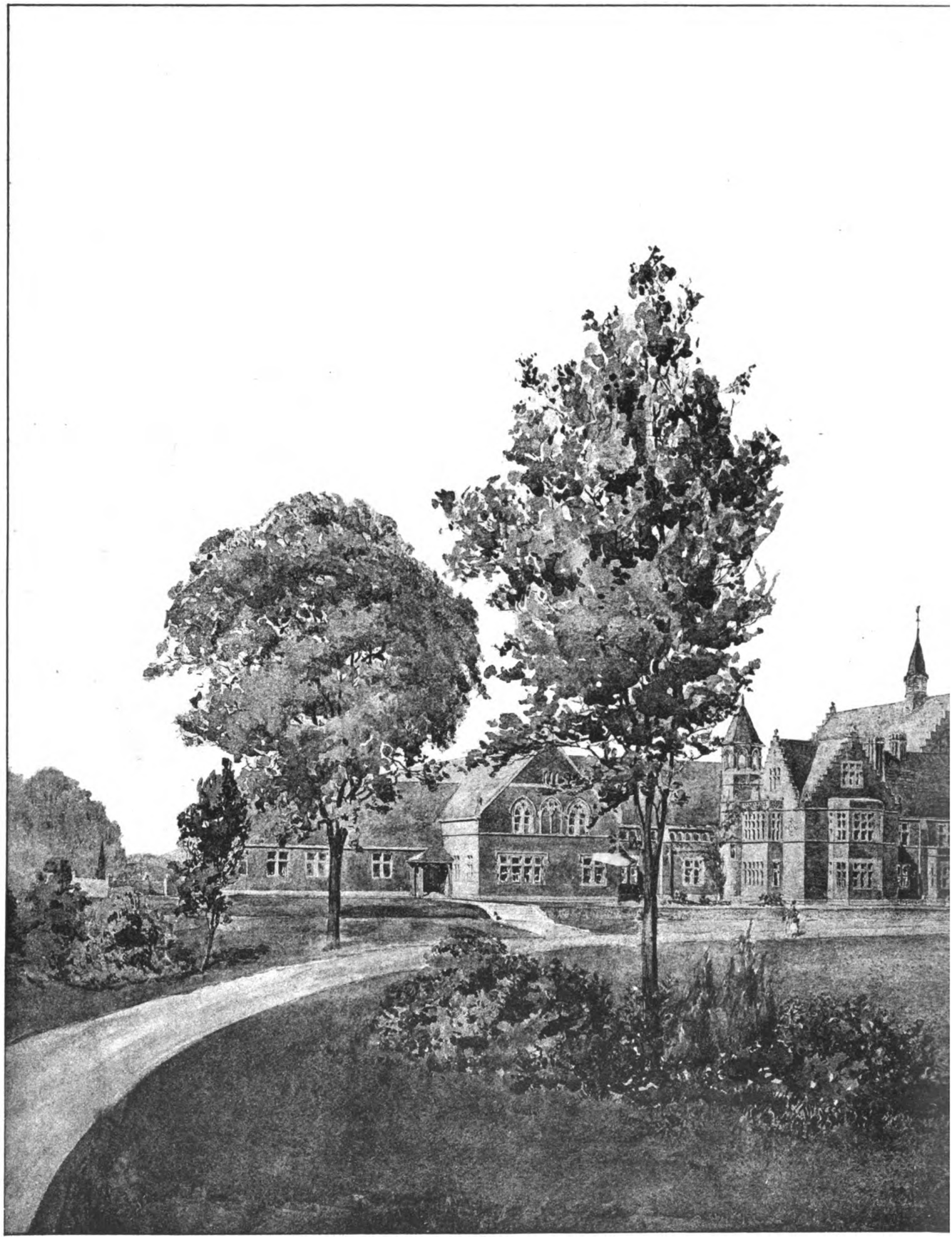

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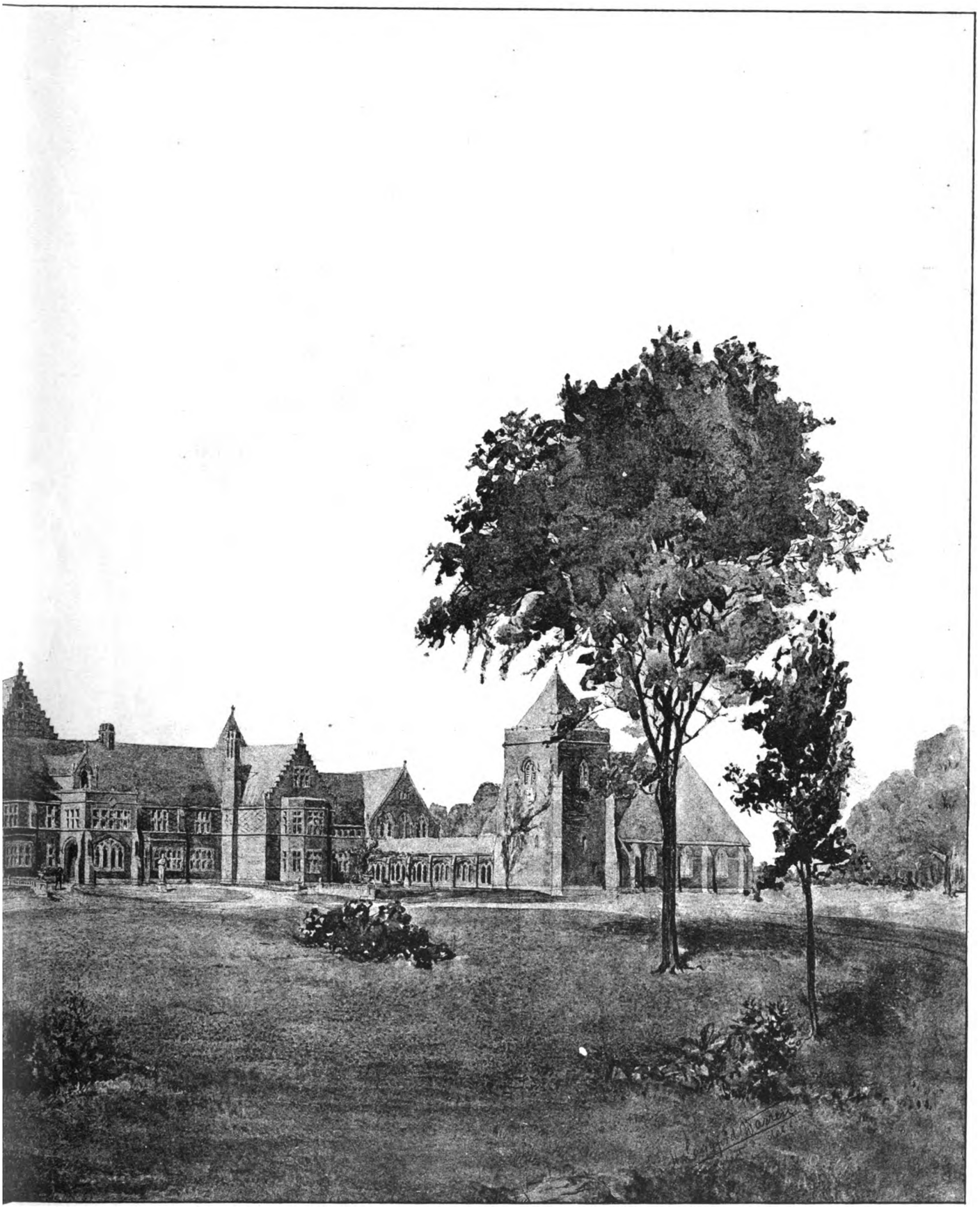

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OY ORPHAN ASYLUM

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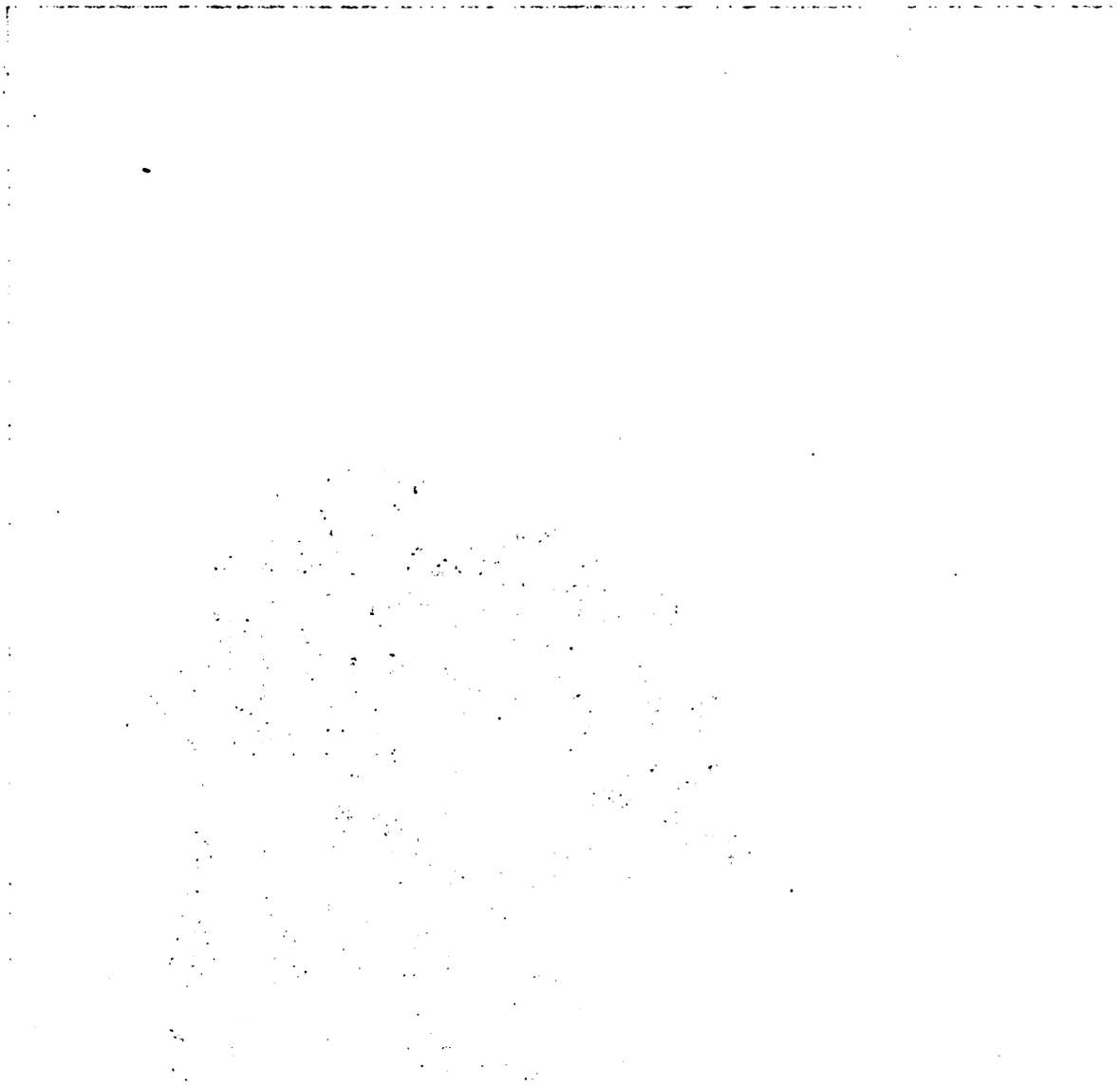

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and Young Lady"; that of 1874, a "Joan of Arc, praying," all statuettes; that of 1875, the "Age of Stone," in bronze, and a statuette of a minstrel of the fifteenth century, and in 1876, an astonishing group called the "Gladiator and Gorilla," half life-size, in terra-cotta. This

Elephant for the Garden of the Trocadero, Paris. Fremiet, Sculptor.

group represents a gladiator, armed with a net and trident, who enters an arena to catch and slay his opponent, the gorilla, but the latter kills his enemy, tears off his scalp and places it upon his own head.

When Barye died in 1875, his position, which he had occupied for twenty years, as professor of drawing and modelling for zoology at the Museum of the Jardin des Plantes, became vacant, and a successor was chosen by competition, by the other professors of the

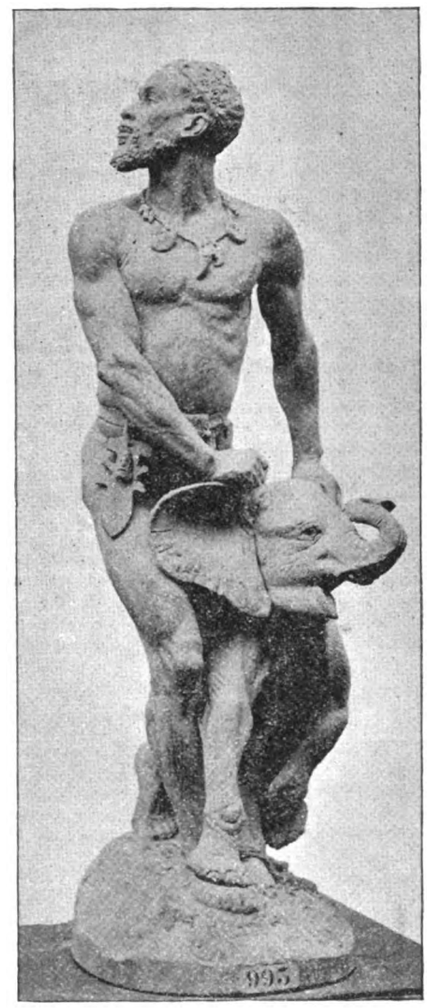
AKnight Errant of the Middle Ages, Lille, France. Fremiet, Sculptor.

institution. Frémiet was unanimously elected. The duties of this professorship require the giving of thirty lessons, during the months of May, June and July, for the salary of five hundred dollars.

In 1877, the government was constructing the palace and garden of the Trocadéro, and commissions were given to four sculptors to make as many large animals, life-size, to decorate the four corners of the great fountain, and the elephant was assigned to Frémiet. He received twelve hundred dollars for the plaster model.

The same year brought him the promotion to the grade of Officer of the Legion of Honor.

Hardly had he finished the "Elephant," when he received, to his great surprise, an order, from the Director of Fine Arts, M. Chennvières, for a colossal statue in marble of St. Gregoire de Tours, one of the statues which the government was having executed for the Panthéon. The sculptor could not imagine why he was selected to do this work, and what was still more strange was the good price he was to receive for it, four thousand dollars, the government furnishing the marble. Of this sum, eight hundred dollars were for the plaster model, which was to be only one-third the size of the finished work. It was nearly as much as he had received for his model of "the Age of Stone," and more by two hundred dollars than he had been paid for each of the equestrian statues of the "Gallic Chieftain" and "Roman Cavalryman." The matter excited his curiosity, but it was soon explained. His old and valiant friend Gérome, knowing about the projected decoration of the Panthéon, had been to see Chennvières, and said to him: "Look here, you are fitting the building with pictures and statues. It has been the custom of the government to give fifty thousand francs for a picture, and for statues barely enough to pay for the clay. The sculptors are kept on the verge of famine, while the painters live in palaces. Now try in this affair to give the sculptors at least enough to live on, and see that Frémiet has something."



Negro and Young Elephant, Carrara, Italy. Fremiet, Sculptor.

"St. Gregoire," in marble, and one of the sculptor's most splendid equestrian statues, a "Knight Errant of the Middle Ages," in plaster, were exposed in the *Salon* of 1878. The latter was bought by the State for *sixteen hundred dollars* and sent to the Lille Museum.

When the great exhibition of 1878 was preparing, Frémiet sent word to the art committee that he would like to contribute two works, "The Age of Stone" and the equestrian statue of the Duke of Orleans, at Pierrefonds. It seems incredible, but is true, nevertheless, that the committee refused to accept the first. The sculptor was not represented at this exhibition, as, on receiving this decision, he refused to send anything.

Apropos of this, and of the general character of French art-committees, I am reminded of a little parable told by Aubé, which runs thus: "The governing powers of art in France appear to me like a pond of water, in which, like young fish, swim the art aspirants, and on the surface of which sail around the majority of artists, a motley lot of inferior men, and the Institute. Whenever a young fellow pops up in sight, through some vigorous and original work, the whole crowd hasten to tap him on the head and knock him under. But if he keeps on popping up, higher and higher every time, it becomes harder to put him down, and finally, when he gets well out of the water and they see he is a force they can't keep under, then they all crowd around and are very friendly." We shall see that Frémiet did not arrive at this delectable condition until nine years after, in 1887, when, at the age of sixty-three, he was awarded a Medal of Honor; and that he did not have full swing for an exhibition of his works until two years later, at the great exhibition of 1889. His contribution to the *Salon* of 1879, was one of his most admired statuettes,

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"St. Michael," and another, called the "Bully." In that year Frémiet executed an interesting decorative composition for M. Devillé, of Carrara, Italy. It was composed of a negro carrying off a young elephant, and looking back to see if the mother were coming, as the centrepiece; on one side was a sitting lion, content with the

The fallen Stag and Serpent at the Trocadero.

soft air of Italy, on the other a polar bear, gasping for breath. The figures were two-thirds life-size, and cost, for the plaster models, eighteen hundred dollars. They were executed in marble by their owner. Of the centrepiece, M. A. Sylvestre was kind enough to say that, "these two figures of man and beast, are treated in that natural sentiment, at once exact and delicate, which gives such a personal charm to the works of this eminent sculptor." Not long after the "Negro and Elephant" were cut in marble, there was an exhibition of old masters at the Palace of Fine Arts, which included only two works of sculpture, this one and Carpeaux's "Ugolino," both beautifully placed. The *Salon* of 1880 also contained this group, as well as a charming composition, statuette size, of the "Homage to Corneille."

It was about this time that the sculptor received from M. Turquet, under-secretary to Jules Ferry, Minister of Fine Arts, an order for a marble bust of Charles V, to be placed in the national library. It was a pleasant surprise, as Frémiet and Turquet were strangers to each other, and it not only gave the former much professional gratification, but it permitted him to add his commendation to that of many other artists, Rodin especially, as the reader may remember, of the exceptionally faithful way in which M. Turquet conducted the affairs of that administration. "Many fine things can be said of Turquet," says Frémiet. "He was more specially friendly to artists than had been many of his predecessors."

Equestrian work had not, in the meantime, been neglected, for the *Salon* of 1881, saw one of the sculptor's most richly decorative statuette figures, the "Grand Condé,"[1] in black bronze; and a "Monument to Miss Jenney," in gilded bronze and marble, made for a South American, in memory of a much-prized dog. For the latter work eleven hundred dollars were paid. Curiously enough this little affair won a good deal of praise for its charming arrangement. A copy of the "Condé" was bought by the Duc d'Aumale, for the Château de Chantilly.

Some time in the latter part of 1880, or early in 1881, Frémiet received a letter, which, in many respects, was the most gratifying communication that ever came to him. It was from the Roumanian minister in Paris, Collemaki Cartargy, and contained a request, expressed in the most appreciative terms, to make a colossal equestrian statue in bronze of Stephen the Great, for the city of Jassy, Roumania. This commission, doubly agreeable in coming from a stranger for a strange and far-off country, was the first indication he had ever received that his long list of equestrian statues had made an impression beyond that made by the works of ordinary sculptors. He was rejoiced to feel that there was one representative man in the whole world who gave him practical evidence that he had not worked in vain on this high plane of art. Yet it was so unexpected that it almost seemed untrue. Besides, he was to receive a fair price for it, twenty-six thousand dollars, pedestal included.

"Who designed the pedestal?" I asked. "I did," answered the sculptor. "I don't like to have architeets design my pedestals, because they make them too large for the statues. They think the pedestal is the monument, and on top of a big pile of stone they stick the statue. I attended to everything about the entire affair," and, he enthusiastically added, "I found the minister one of the most charming of men. Nothing could have been more delightful than our intercourse."

This statue was in the *Salon* of 1882, as also the marble bust of Charles V, but it is now well out of the world, as is amply proved by the fact that after more than two years of persistent effort it has been found impossible to persuade a Jassy photographer to make a picture of it. Perhaps, after the usual Eastern period of historical sanction (twice the number of years that the monument cost dollars) some definite indication may be obtained of its actual appearance.

[1] See the *American Architect* for February 1, 1890.

Even Stephen himself had to wait over eight hundred years for sculptured honor.

In 1882, M. Ballu, architect of the new Hôtel de Ville, of Paris, asked Frémiet to make a large chimera, for the stairway of that building, but he refused, and the order was changed to an equestrian statue of the now famous "Porte Falot," or Mounted Torch-Bearer of the fifteenth century. It is life-size, in bronze, and cost nine hundred and sixty dollars, for the plaster model. This model and the statuette of the "Snake Charmer," in bronze, were in the *Salon* of 1883.

It was also at about this time that the sculptor entered, for some reason, the Philadelphia competition for the Washington monument making two sketches, one of which was equestrian and composed of thirteen figures. For both models he received four hundred dollars.

Frémiet was occasionally asked to compose some strange piece of decoration for a private residence. One of these was for the famous surgeon, Dieulefoy: this was in the form of an enormous plant, a species of ivy, with large leaves, and placed in the stairway. Behind it, attached to the wall, were two appropriately proportioned gilded butterflies, and among the leaves a big monkey reaching down to catch them. Another, for a rich art-collector on the Champ Elysées, represented an immense marabout in the act of defending her nest of young from the attacks of an equally large serpent. This was also in bronze, placed in an obscure niche with very rich surroundings, and lighted through the eyes of the birds, which were of blue glass. The effect of this arrangement at night is wierd in the extreme. For this work the sculptor received the fair price of four thousand dollars.

For the stairway of Gérome's princely home he executed the combination of a great snake tied by its neck to the top of a tall gas standard, with its body winding around it.

Early in 1884, Mr. Alphand, the Director of Public Works for the city of Paris, commissioned Frémiet to make, in plaster, the enormous decorations for the fountain of the Trocadéro, the central group of which consisted of a stag attacked by a serpent. Around this, in all sorts of fanciful positions, were a whole series of fantastic water-animals, turtles, etc., all spurting water, and joining in the general fray. They were finished in time for the national celebration, July 14. Four thousand dollars was the price paid for this resurrected menagerie. Since the above date M. Alphand has been trying to get the city authorities to have this great work cast in bronze, but without success. From time to time it has been necessary to repair it, but the weather worked faster than the repairers, and just before the great exhibition of 1889 opened, the noble stag, wearied

Bear and Man of the Stone Age. Fremiet, Sculptor.

with the unceasing squeeze of the serpent, and tired of rain and frost, fell over on the rocks below, carrying his slimy antagonist with him. Taking cruel advantage of the stag's helpless position, and in sympathy with the empty treasury of the city, Frémeit gave them both a lift by mending the broken body and head of the snake, and

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raising the latter portion of the animal well above his fallen prey, as if in the act of striking the final blow.

But a year or two more and a rotten mass of plaster will take the place of what was once one of the most imposing pieces of fountain decoration in Paris. So much for the city's appreciation of Frémiet.

The subject of the "Bear strangling a Hunter," had not been forgotten nor the beautiful sketch of it destroyed, though the large model had gone to ashes with the burning of the Crystal Palace, in New York. The sculptor remodelled it, perhaps with more vigor than ever, and sent it in plaster to the *Salon* of 1885, under the designation of "Bear and Man of the Age of Stone." It was bought by the State for eleven hundred dollars, cast in bronze and placed in the Jardin des Plantes, on a low pedestal, at the side of the office-building of that institution.

Symbolical Memorial to Corneille.

Always seeing a plaster cast of a gorilla at the Garden and regretting the destruction of the one he had made in 1859, decided Frémiet to make another group of the same subject, but differently and more compactly treated. Its appearance in the *Salon* of 1887 created an immense sensation, and, as usual, a wide division of opinion. The few best artists and art lovers pronounced it, independent of subject, a great masterpiece, while many wholly condemned it, because of its subject.

It is to be borne in mind that Frémiet had made, within thirteen years, no less than six works, four of which had been in the *Salon*, that were richly entitled to the highest professional recognition his country could give as far as medals were concerned, and that he was the author of a list of equestrian statues, and other works, unparalleled in the history of French sculpture, yet he had not received from the *Salon* a single medal since 1851, thirty-six years before. A Medal of Honor had been suggested on several occasions, by a very few members of the jury, but the majority — always opposed to giving high recompenses to any one not a graduate of the École des Beaux-Arts, or for any work whose character was not in accord with its scheme, as in the case of the "Age of Brass," and "St. John," by Rodin — would not listen to such a proposition, preferring to support the disgrace of refusal and the acknowledgment of confessed prejudice. When, however, the "Gorilla" appeared there was a determination on the part of these few artists, members of the jury and others, that this occasion should not pass without Frémiet's receiving his just and too long delayed deserts, so far at least as the jury were concerned. Nor was it an easy matter to accomplish. But these men went to work, and they worked so persistently that, united with the remembrance of the neglect the sculptor had hitherto suffered, the growing impression, in spite of the subject, that the "Gorilla" was a great work of art, the merits of the important works already produced by its author, and the opinion, growing daily, that he was indeed a veritable master, they gained the day, and Frémiet received the highest recompense of the *Salon*, the Medal of Honor. This is the short story. To-day, if an allusion is made to the medal in the presence of a member of the Institute, or one of the old school sculptors, he will assert with great solemnity that the medal was not given for the "Gorilla," but in recognition of a life's work, a kind of aggregated accumulation of forty years' deserved honor.

The contest over the "Gorilla" was not ended with the medal. The State was expected to buy it, and of course there could be no doubt about it. But there was, and a funny one, too. The shadow of scientific exactitude was still on the war-path. When the buying-committee, headed by the Minister of Fine Arts, passed before the *Salon* sculpture, with the purpose of selecting such works as they thought worthy of such distinction, they arrived in front of this group, which had been included in the number already marked favorably by the committee. The minister, a distinguished chemist, decidedly opposed its purchase, asserting, as the sole and convincing reason, that it was not "a scientific fact."

The committee, at once and unanimously, voted to refuse its purchase.

Times had, however, changed since the plesiosaurus incident, and Gérome and Frémeit made up their minds that that decision would not be final. Ministers were not everlasting, and the chances were that a chemist would not always regulate the art requirements of France. In fact his retirement came early, and to his successor an appeal was made to do what his predecessor had refused. But he hesitated. "The — 'Gorilla' — was — not — like — the — sculpture — the— State — generally — bought. Ought such works to be encouraged? What influence would it have on the rising generation? Was it worth while to disturb the habits of the administration?" Grave questions all. And all asked in favor of that mass of inertia that had sat on Rude, Barye, Millet, Rodin, and every other *living* man in French art. Gérome and the sculptor persisted, and the new Minister finally yielded, giving the generous sum of one thousand dollars for the group. As for having it cast in bronze, that could not be thought of, and so it was stowed away in the dark corners of the Palais de l'Industrie!

It is safe to say that as long as Gérome lives, no Minister or Director of Fine Arts in France will be permitted to sleep easily until the "Gorilla" is in bronze and set up as an object of harmless mockery in the Jardin des Plantes. It is said that the present Director is favorably disposed, and with time will accomplish the desired end.

Of the hundreds of critical notices of the "Gorilla," that of Mr. Paul Leroi, in *L'Art* is one of the most comprehensive. He says at the close of an article on the sculptor, "To conclude, besides his statuette, so characteristic of 'St. Louis,' he sends this year to the *Salon* the group of a 'Gorilla carrying off a woman' a subject he had already treated more than twenty years ago, but which he then conceived very differently and with infinitely less majesty. One cannot like this subject: that is an affair of sentiment, and I do not propose to start any discussion on this point, having always indulged in the belief that to the artist belongs the most absolute liberty of inspiration, provided that he creates a real work of art. No impartial mind will dispute the fact that M. Frémiet has incarnated, to a supreme degree, bestial force concentrated in this creature of monstrous and formidable structure, and the desperate struggle of the human being — above all seductive and sensitive — crushed by the ferocious embrace of this colossal animal which does not appear to suffer much from the javelin which was struck into him by one of those who hoped to take away his prey.

"The contrast between the two figures of this group, the learned variety of drawing and modelling — so much brutal heaviness and giant energy so vigorously opposed to such feminine suppleness and weakness, all combined in this superior work, justifies the vote of the Medal of Honor, which crowns not only this recent creation but a whole career of talent growing continually and nobly consecrated, free from all intrigue, to the purest worship of art. Rude would be prouder than ever of his disciple."

L'Art Français, had the following from the pen of M. F. Javel: "The 'Gorilla' is a piece of art of the first order, as well for the boldness of its invention as for the energy of its execution. A grand

The Grandfather, (Statuette). Fremiet, Sculptor.

dramatic breath animates it, and art here is in accord with nature. This gorilla who carries off a woman, is not perhaps a sight that is

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to be seen every day at the Jardin des Plantes, from ten to four, but might be — in Gabon. It matters very little, any way, whether this rape has been committed or not, or if so, at what epoch, or in what country, it is the movement that the sculptor has given to his figures, the agony of the young 'captive' and the desperate luxury of the ravishing gorilla, that he has majestically rendered. The medal consecrates a long and brilliant career."

Expressions like these were very common: "What triumphant and tender savagery." "Striking scene, strong and vigorous work." "Learned anatomy studied with conscience." "The general lines of the group reveal an artist refined to the highest degree. All this suffices to make interesting this great piece of romantic sculpture."

But the wise were incredulous. "The shoulder of the brute is pierced by an arrow, and yet the arm holds a heavy stone that the ravisher might throw at those who disputed his conquest." "A gorilla could never carry off a woman." "Such finely-formed women do not live in the country of such beasts." "Still what will the artists care, they will give themselves entirely up to the charm they pretend to see in this shocking drama."

Passing by the group at the *Salon*, one day, Aubé said to his companion, also a sculptor: "After all, I guess Frémiet is the biggest fellow we've got." "Yes," answered the latter, "and of all Rude's pupils, Carpeaux among them, he is the only one that has not in some way flashed in the pan. Many of them promised well, and Cordier did some good busts, but they soon emptied their sacks. When Carpeaux came to ask Rude's permission to enter his studio, he said that he had had a vision of the Virgin, who told him that he was called to the high destiny of a sculptor. Since Barye, nothing has been done that can compare with this thing. And I think the 'Hunter of young Bears' as big as any thing Barye ever did. Yes, Frémiet is the biggest one there is. But, God of all the Saints! how he has been run over, rough-shod, by scores of inferior men! We don't seem to know anything about him.

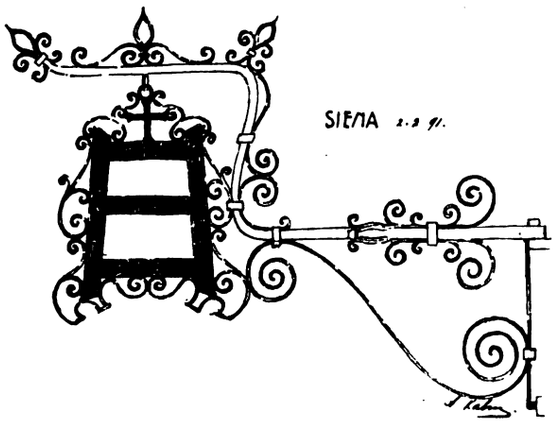
"Taine is right when he says that 'there was a time when artists were treated like men, but nowadays it is the fashion to starve them while living and make a great noise over their coffins.' And it's the nearest thing to artists Taine ever said. The fact is, my friends, if four of our sculptors were dead, or exported, we should have nothing left but a lot of weak imitators of the antique."

The sculptor's exhibition in the *Salon* of 1888, comprised two small subjects, "The Grandfather," one of the finest things in sentiment he ever executed, and a standing figure of that indescribable character "The 'Incroyable,'" both in silver bronze.

T. H. Bartlett.

(To be continued.)

THE FAILURE OF BUILDINGS.



An address on the causes of failures in buildings was given by Professor T. Roger Smith, F. R. I. B. A., a few weeks ago at Carpenter's Hall, London Wall, being the second of a course of free lectures given under the auspices ot the Carpenter's Company. The lecturer restricted attention to failures arising from giving way of the structure, owing to the absence of the provisions and precautions which would have prevented it, and excluded from his survey those due to wear and tear. His first example was the collapse of the station-roof at Bricklayer's Arms, on the South-Eastern system, some forty years ago. Here a structure carried on a multitude of columns fell like a house of cards, owing to a single pillar being knocked down by an engine, and the lecturer recollected visiting the scene of the disaster, which was strewn over uniformly with broken slates, through which other *débris* protruded here and there. The accident was a warning as to the source of danger existing in carrying a large roof by very intermediate supports, and after its occurrence they were avoided. But there was a latent defect in the framing of the roof, which was not generally known at the time. The struts of the simple iron trusses were too short, and in putting together the trusses were so tightened up as to be actually weakened by the framing. Mr. Roger Smith showed in detail, by means of diagrams, the arrangement of the roofs at the London Bridge Station, belonging to the same railway company, where it was also necessary to reconstruct the roof, or, rather, to support every truss by a timber-post, near the centre of the span, owing to the sagging of the framing. Here at London Bridge Station, as might still be seen, the load carried by each queen-post truss approached so nearly to the strain it was caculated to bear that there was danger of a permanent set and enormous pressure at the joints. The risk could have been easily avoided by putting the principals nearer together, adopting heavier scantlings, and by having a steeper pitch. Two sets of reasons combined to occasion the failure — one was the flatness of the pitch and general lightness of the scantlings compared with the heavy load they had to carry; the other the softness and comparative flexibility of fir timber. The old examples of framing often taken as models were executed, it should be remembered, not in fir, but in hard woods, such as oak or chestnut, in which the articulations of the framework were able to bear the strain, and would neither yield nor be crushed, while the general framework was stiffer. Much more strain was thrown on the feet of the principal rafters when a truss was flat than when steep, and this pressure became also a transverse rather than a longitudinal strain.

The design of a large timber roof was limited to the scantlings and lengths which the markets could supply; where greater strength was needed than single timbers could furnish, the main beams should be doubled, and where greater length of timber was required than could be afforded, the entire design of the roof should be rearranged.

At King's Cross terminus a much more ambitious roof failed, and had to be removed. There all the timber trusses sagged in the middle, and had to be replaced by iron ones. These King's Cross roofs were carried by trusses which depended mainly upon a laminated rib of timber, semicircular in outline; there were two roofs side by side of 100 feet span each, and from the first there was an unexpected amount of lateral thrust from the ribs. These laminated ribs were constructed on Col. Emy's principle of boards bent to a semicircular form, laid one on the back of another and bolted, the tendency being for the ribs to straighten themselves under pressure.

The ancient roof of Eltham Palace, a heavily-timbered hammer-beam structure of only thirty-six feet span, had spread and had thrust out the walls, partly owing to its flat pitch, but chiefly because the foot of the principal rafter came down on to the hammer-beam inside the line of the wall instead of well back; there was thus little to prevent the free end of hammerbeam from dropping, and so dislocating the whole framework. All these examples of failure in carpentry arose from inherent defects in the designs. A familiar instance of failure due to this cause was the sagging of the double-framed floors in superior houses built at the end of the last century.

There was at that time a strong wish to economise height, and we constantly met with old examples of floors framed in the manner shown in Tredgold's "*Carpentry*," where guides were thrown across a room having shorter binders tenoned into them, the mortises in the girders being very deep. The binders again were full of mortise holes, because the floor joists were tenoned into them, and ceiling joists are often mortised and tenoned into them. These mortises weakened the timbers, which shortened owing to shrinkage, and often the tenons of the joists or timbers were drawn out, the floors being generally out of level, and in many cases insecure.

Very large structures in carpentry were hazardous, being far less rigid than iron ones, and consequently the latter material should be preferred to wood, unless there were special reasons to the contrary. The author had once to examine a curious case of failure in the carpentry of a structure, due to injudicious alterations. The building had originally been a spacious two-storied one, covered by a Mansard roof, with a floor at the level of the feet of the rafters, the large beams which carried the floors having to do duty as ties. In order to convert this building into a scene-painter's studio, the intermediate floor, including of course the ties, had been cut away, the result being that the walls soon leaned so far outwards, owing to the spread of the roof, that the building had to be taken down. Had the owner, or his builders, had any knowledge of carpentry, the building would not have been rendered dangerous. Risk from ill-judged alterations was not at all infrequent. Gas-fitters had been known to cut right through the tie-beam of a timber truss in order to give passage to a gas-pipe, and the timbers of quarter partitions were cut through to widen old or make new openings. But the most common sort or failures due to injudicious alterations were cases in which the load carried by a building was greatly increased, owing to the idea that, as the structure and its foundations showed no signs of bursting, bulging, or cracking, there was a reserve of strength which might be drawn upon. The central towers of many cathedrals and churches were examples in point, that at Wells being an instance where the progress of settlements due to raising a tower was successfully stopped by throwing inverted arches across the openings in the tower, so as to stiffen the work.

In 1869 a failure occurred in the part of Somerset House occupied by King's College, due to a dissimilar cause — the employment of cast-iron for girders carrying a terrace floor. The girders which failed had little weight on them, and had carried it for many years. The untrustworthiness of the material was increased by the fact that the upper flange of each of the main girders was cut away where the smaller cross-girders were connected to them; and, further, each main girder was firmly held to the masonry of the main wall, and to that of the terrace by dowels. When the last strain came upon the girders, therefore, the flange gave way at the weakest point, and wrecked the whole structure. This failure confirmed the popular

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prejudice against cast-iron, and showed the danger of pinning beams to the structure. The failure would not have occurred, however, had it not been for the excavations in front for the Embankment, Main Drainage and District Railway, showing the danger of tampering with foundations, equally in the case of massively-constructed buildings as in light ones. This removal of parts of foundations was a fertile source of failure and partial failure in buildings. In one case, where a wall of good height fell, not far from Somerset House, he had been credibly informed that no less than 60 feet of the wall was found to be without a bearing for its footings on the foundations just before the accident occurred. Fortunately in the case of subsidence of foundations the cracks and departures from the perpendicular were so formidable in appearance that, as a rule, they were dealt with before the defect was beyond remedy.

In every failure the first question suggested by experience was, What was wrong with the foundations? Pumping out water from a neighboring excavation was often the cause of sudden disturbance of foundations.

Again, a moist soil afforded a site on which a building of moderate weight rested securely until some neighbors began a large building by excavating to a great depth drawing off the water. When the pumping ceased the damage generally stopped; but this was not always the case where a new sewer was the cause of the subsidence, as water often followed the channel excavated for the sewer to be laid in. In clay soils on hill-sides much slighter causes often produced serious results, and the lecturer gave cases of evils arising both from letting water in and draining water off from such sites which had come under his personal observation, the former being a landslip arising from merely stripping a long narrow piece of turf to form a bed for vegetables.

Many failures had occurred from retaining-walls proving insufficient to resist the lateral pressure brought against them, and granaries, ice-houses, and stores required great strength of construction and to be securely tied. It was dangerous to remove any earth from the immediate neighborhood of foundations, especially while the work was green. The author had seen a large part of an ordinary semi-detached dwelling brought to the ground by the builder having begun to put in a drain parallel to the flint wall, and at a slightly lower level than the concrete. The earth under the concrete began to escape sideways into the drain trench, the concrete dropped, and the brickwork with it, bringing the wall down.

While he did not wish to speak of accidents due to fraud, he would point out that carelessness and stupidity were sometimes almost as formidable in their consequences as positive fraud, and so many persons were careless and so many deficient in common sense that the necessity of minute supervision and unceasing vigilance during building operations could not be too strongly urged. In a large suburban house, he had been called in at three or four different times to underpin parts of the external walls, principally because they were built without footings. The omission to bed drains in concrete had been a cause of structural failure, as well as injury to health.

The trouble with chimneys and copings owing to the omission of the precautions of laying the bricks in cement was too familiar to need illustration. Imperfect bonding and the use in 14-inch walls of half-headers had resulted in many a house having external walls in two thicknesses, one of one brick and one of a half-brick only, connected at rare and uncertain intervals. In many cases the half-brick skin bulged in huge blisters two to three yards over. Where the damp-course was omitted all the lower parts of the walls were soaked, and if ventilation was omitted from a boarded basement, decay would set in in the joists and boarding. Indeed, if in place of wet-rot dry-rot was set up, one of the most formidable forms of failure in a building was present. Where damp and absence of ventilation existed, many years' freedom from attack was no guarantee that the building would not be invaded with dry-rot directly one piece of infected wood, say of white fir, was introduced.

The most extensive case of failure the lecturer ever saw, that of the substructures of the Adelphi Terrace, was mainly due to the introduction into them of bond timbers, a custom now happily exploded, and the mischief there did not reveal itself for more than fifty years after erection.

Passing on to deal with failures in masonry, Mr. Roger Smith referred to the well-known cases of Norman buildings consisting of two skins of ashlar masonry inclosing a mass of loose stones and poor mortar. Although such walls sometimes stood for centuries, they at last buckled and yielded, three well-known modern instances of failure being the central towers of Chichester and Peterborough Cathedrals and the tower of St. John's Church, Chester. It should not be forgotten that it was possible for buildings to be tested by exceptional trials.

Setting aside the risk of fire, there were the perils due to unusually high winds and even to earthquakes. Were but a slight shock of earthquake, such as was experienced at Colchester eight years since, to occur in London, the results would be disastrous. Extremes met, and the damage done by the tooth of time was in the long run as serious as that wrought by an earthquake. Every building would wear out, given sufficient time, and even constant repair was not enough unless from time to time the repair amounted to actual renewal — an instance in point being the exterior of Westminister Abbey.

Passing to a general summary of his subject, the author said the first lesson to be learned was that the foundation was very often in fault when a disaster occurred. Much more than half the cases of failure of buildings practically began here, and too much vigilance and suspicious care could not be exercised while foundations were being put in. Let the bottom of the trenches be carefully tested with an iron bar, and let any soft or defective spot be dealt with promptly and thoroughly, the utmost care being taken to prevent anything which should alter the condition of the soil under or round a building.

Another lesson was that the two common building materials — brickwork and fir timber — were not without their weak points. Brickwork had very little cohesion; a small settlement might result in long and wide cracks, and overloading would cause bulgings; it was also readily attacked by bad weather.

Fir timber, though plentiful, strong, light, elastic, and as a rule, durable and cheap, was soft and unable to withstand compression on the joists. No strain that could be avoided should be put upon the joints of fir. The timber was hardly ever properly seasoned.

Another lesson was that where circulation of air was impossible, the walls would be wet and timbers would decay, giving a chance for the introduction and spread of dry-rot. His last warning was, beware of water. The greatest enemy to building in this climate was moisture.

In conclusion, the author remarked that when failure was threatened the first thing to be done was to attempt to read the meaning of appearances, and any symptoms of movement should be watched and tested. The next step was to check the progress of mischief by shoring, so as to gain time for investigation and repair, which constituted the third and fourth measures to be taken. — *The Architect.*

THE ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

ARMORY FOR THE EIGHTH REGIMENT, N. Y. N. G., FOURTH AVE., NEW YORK, N. Y. MR. J. R. THOMAS, ARCHITECT, NEW YORK, N. Y.

[Gelatine Print issued with the Imperial and International Editions only.]

"THE armory of the Eighth Regiment, occupying the entire front of the block on the west side of 4th Avenue, between 94th and 95th Streets, is," says the *Record and Guide*, "upon the whole the most impressive piece of military architecture we possess. It consists of an administrative building in front and a drill-hall behind. This drill-hall is in all cases a room as large as can be had that must be unobstructed by interior supports. It has a great area and a moderate height, and as an architectural problem presents very much the same difficulties as the train-shed of a railway station. Thus far architects seem to have found it, either as a train-shed or as a drill-hall, singularly intractable. The prohibition of interior supports deprives it of interior features, and its interest is only in its magnitude, while outside it consists of low dead walls. The architect of the Eighth Regiment armory has scarcely improved upon his predecessors in the treatment of this part of his task. The wide rear wall of his building is a flat expanse of brick that gives no sense of massiveness, since there is no display and can be no accentuation of the thickness of the wall, rising to a low and rather sprawling crow-stepped gable that masks the roof behind it. It seems as if some more effective treatment might have been adopted for a front, or rather a back, so extensive, though it is a fact that no designer has yet hit upon a treatment of it at once expressive and impressive. The side of the drill-hall shows what seems a clere-story, although it may be, in fact very probably is, but a vertical sash resting on the arch trusses of the roof. At any rate, it appears to suggest a motive for a corresponding treatment of the end wall, by dividing it into three, a centre higher than the sides, and separated from them by buttresses, which in so long and unbroken a wall always appear to be needed for strength, while the accident that occurred during the construction of this very building might very probably have been averted if the wall had been so reinforced. This arrangement was adopted with success in the rear wall of the Metropolitan Opera House and gave an architectural character to what would otherwise have been a perfectly uninteresting expanse.

"The treatment of the drill-hall is, however, almost the only exception we have to make to the manner in which the architect of the new armory has performed his task. The material is baked clay, and is almost entirely common bricks, selected for their color, which is excellent and deep. Terra-cotta is used in the crenellated copings that crown walls and towers, while a brown sandstone is introduced very sparingly indeed, the sills of the openings and the water-table being composed of it, and a column of which we shall speak presently. This monochrome of red is undoubtedly effective, especially where the parts are so simple and on so large a scale; but a slight variation in tint to a still deeper red, if it could be had, for the arches and other structural features, would have expressed the construction better, and might have been equally effective as color. In this, as in many other respects, the Casino may serve as a model for an architecture of baked clay.

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"The front of the building on 4th Avenue is a wide gable like that of the rear, but here deeply recessed behind two powerful flanking towers. The lower story, between the towers, is occupied by a terrace, of which the front wall is pierced only by an entrance archway, is slightly withdrawn from the extreme projection of the tower, and is lighted from skylights that are, rather unfortunately, visible from the street. The interval between the wall of this basement and the great towers is filled out with "squinches" of brick, and the junction is marked by turrets repeating in miniature the form of the towers, and thus giving scale to them. The recessed wall shows in its lower story a large arched opening at the centre; in the second, round-arched openings of moderate size, which in the third are slits extending into the high and shallow cornice. The effect of the whole is excellent. The towers are, in fact, of ample dimensions, while, as has been said, the repetition of their forms on a smaller scale in the turrets makes them look even larger. The uniform use of crenellations, alike over walls and towers, also gives unity and dignity to the front. In detail it is as admirable as it is simple, mainly admirable for the unmistakable character of brickwork in the design of every feature.

"The sides are equally effective until the building declines into the drill-shed. The feature of the north side is a subordinate entrance. From a stout dwarf column of sandstone, not more than a diameter high, with a foliated capital and a heavy double abacus, are turned outward two arches. One of these covers a window, while the other is a relieving-arch, under and behind which the arch of the doorway is burrowed into the thickness of the wall, thus very impressively displayed. On the north side is another doorway, equally good and massive, though less elaborate. The junction of the tower with the side walls is another point worthy of mention and praise. Below, the tower meets the wall and is merged in it, while in the third story its curve is continued inward, and shows under an arch thrown across in the plane of the wall. All this, that is to say all the administrative building, is highly successful and if the drill-shed is less so, its comparative unsuccessfulness can scarcely be imputed to the designer."

STORE FOR MRS. MARY S. VAN BEUREN, NEW YORK, N. Y. MESSRS. D'OENCH & STEVENS, ARCHITECTS, NEW YORK, N. Y.

This store is to be occupied by Messrs. Le Boutillier Bros. The building is 75′ wide, 206′ 6″ deep and 75′ high. The front is built of granite and buff-colored brick and terra-cotta, with terra-cotta cornice. All columns and girders are of iron and steel. The building was designed to be occupied as a retail dry goods store.

ACCEPTED DESIGN FOR THE TROY ORPHAN ASYLUM, TROY, N. Y. MR. H. LANGFORD WARREN, ARCHITECT, BOSTON, MASS.

HOUSE FOR DR. D. S. STEVENS, LYNN, MASS. MR. PENN VARNEY, ARCHITECT, LYNN, MASS.

A GAMBREL-ROOFED COTTAGE, EAST WATERTOWN, MASS. MESSRS. RODMAN & NORRIS, ARCHITECTS, BOSTON, MASS.

[Additional Illustrations in the International Edition.]

LE RABOT, GHENT, BELGIUM.

[Gelatine Print.]

The "practical" American who may ask, of what use to him can be the publication of this plate? has but to turn to the view of the Eighth Regiment Armory in this issue to have his question answered. Although our loquacious *cocher* called this building the Château des Espagnols — he was given to ascribing everything of interest to the period of Spanish domination — we identify it as one of the old city gates styled Le Rabot, which is at the end of the Nouvelle Rue du Rabot on the northern side of the city. Its relation to the old walls and the manner in which it served as an entrance are not at all obvious.

BAVARIAN BANK, MUNICH, BAVARIA. HERR. W. MARTENS, ARCHITECT, BERLIN.

[Gelatine Print.]

HOLLAND HOUSE, LONDON, ENG.

Holland House, or, at least, the central part of it, was built by Sir Walter Cope, a Gentleman of the Bedchamber to King James I, in 1607, and was at first known as Cope Castle. His daughter and heiress, Isabel, married Sir Henry Rich (afterwards Earl of Holland), who built the wings and arcades, and employed the best artists of the time in the decoration of the interior. The Earl was beheaded in 1649, by authority of the High Court of Parliament, for levying war against the supreme authority of the nation. Fairfax and Lysons were afterwards occupants of Holland House, and in one of the fields Cromwell is said to have discussed State policy with Ireton. But eventually the Countess of Holland was allowed to repossess her house, and plays were acted there at the time when the London theatres were closed by the Puritans. The second Lord Holland succeeded his cousin as Earl of Warwick, but still continued to make the house his principal residence. His son and successor married the daughter of Sir John Middleton, and this was the countess who married Addison, and was the mother of that young earl to whom Addison exhibited the Christian manner of dying.

From about the time of the Restoration until 1749, Holland House was occasionally let, and among the tenants were Sir John Chardin, the traveller; William Penn; Mrs. Morris, the daughter of Bishop Atterbury; downright, incorruptible Shippen; and Lechmere, the lawyer. According to Sir James Macintosh there was a more illustrious tenant, namely, Vandyke, the painter, but this has not been confirmed by satisfactory evidence. William III was thinking of making Holland House a palace, but he preferred the house of the Earl of Notitngham. In 1749 it was let on lease at a rent of 182*l.* 16*s.* 9*d.* to Henry Fox, the first Lord Holland, who bought it in 1767, and in his family it has since remained. The terrace in front on the south side was formed by the late Lord Holland, who displaced for the purpose two Portland-stone piers designed by Inigo Jones, and which now stand at the entrance to the pleasure-grounds. The central room, seen on the ground-floor, is the "breakfast-room" with a projecting porch, and over it is the "gilt-room." The right wing contains the conservatory, with a lead flat over it, and the "smoking-room," which has "Lady Holland's sitting-room" above and the principal entrance-hall (not seen from the south) behind it. The windows between this wing and the centre light the staircases. Next to the breakfast-room, on the left, is the "china-scullery" and "china-room," with the "miniature-room" and "yellow drawing-room" above, and the left wing contains the arcade, with the library and picture-room adjoining on the ground-floor. The principal library is on the first floor, over the latter. The position of the other of the remaining rooms could hardly be made clear without the aid of plans.

The entrance-hall is fifteen feet long and forty feet wide, and has borders and decorations of Italian tiles. There are eight busts in it. Three are by Nollekens, viz, the Duke of Bedford, Charles James Fox and the third Lord Holland; one, by Rysbraeck, of the Duke of Cumberland; one, by Chantrey, of Hookham Frere; one, by Prosperi, of the Duke of York; and the Napoleon and Henri Quatre are by unknown artists. The "smoking-room" adjoining on the ground-floor is now occupied by presses containing manuscripts and other documents, with a few relics of Charles James Fox.

The hall is an important feature in Holland House, with its ceiling painted by Mr. G. F. Watts, R. A. The staircase is most elaborately carved, and on the first landing is a bronze font, cast in 1484 by Michele Garelli or Cassel, a Fleming. The "breakfast-room," which is forty feet long and twenty feet wide, is on the site of the former entrance-hall, and the porch (which is decorated with mosaics) was once a portico for sedan chairs. The walls of this room are hung with old Genoese silk and velvet brocade, and panelled with four Arazzi from the designs of François Boucher, the subjects being Bacchus with Bacchantes, Apollo and the Muses, Vulcan and Venus, and Vulcan presenting Jupiter with thunderbolts. The doorways are arched, and hung with silk held by bands of fine tapestry. The ceiling is panelled and ornamented in Elizabethan style with white and gold pendants, the cornice is uniform, an earl's coronet and the letter "H" being repeated at intervals. There are some Napoleonic relics in this room and a bust of Fox by Nollekens, but of earlier date than that in the entrance-hall. The "china-room" adjoins, and the general effect of it may be considered as something like that of an old curiosity shop, but of one in Utopia, tidy, habitable and comfortable. The walls are hung with Cordova leather, and the china is so disposed that it can easily be taken out for use, and when not used be useful for ornament.

The "map-room" is close to the china-room, and has an antique appearance, although, like all the western rooms, it is modern, being converted from housekeepers' rooms and small offices by the late Lord Holland. The "west room," into which it opens, contains portraits of Charles II and of some of the court ladies, Dryden, Sir Charles Bunbury, Madame Lebrun, Canova, etc. But probably no portraits here are of equal value to those by Mr. Watts, who has been long intimately connected with Holland House. In the picture-room, which lies on the south side of the map-room, there are also portraits by Mr. Watts of himself in armor, Guizot, Thiers, Prince Jerome Bonaparte, Countess Walewski, Countess Castiglioni, Lady Holland and the Princess Lichtenstein when a child. There are two portraits by the late C. R. Leslie, viz, Lord Holland and his daughter, Lady Lifford.

The "print-room" is rich in examples of the different schools, including Marc Antonio Raimondi's "Lucrezia"; Stefano's "Capricci" and "Reposoir"; Dürer's "Virgin with the Monkey," "Melancholy" and the "White Horse"; and a large number of Rembrandts. In the fourth west room they are, amongst other paintings, three by William Hogarth, viz, a portrait of the first Lord Holland, a view of Ranelagh and a scene from private theatricals. A receipt of Hogarth's shows the humble prices he was paid for his engravings. "The March to Finchley" cost 10*s.* 6*d.*; "Paul before Felix" and "Moses brought to Pharaoh's Daughter," 7*s.* 6*d.* each; the prints of "Cruelty" and "Beer Street' and "Gin Lane," 1*s.* 6*d.*

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each; so that nine prints were sold for 34*s*. In the journal-room on this floor is the portrait which Mr. Watts considers to be one of his best works, that of the Princess Lieven.

The "gilt-room" is on the south side of the first floor and the original architect is supposed to have been John Thorpe, the decorator being Francis Cleyn. All the decorations and paintings have been restored by Mr. Watts's own hand, or under his superintendence. The ceiling was, according to Walpole, painted in grotesque by Cleyn, but of this nothing remains. This room, it may be said, is reported to be haunted by the ghost of the first Lord Holland, who nightly visits the scene of his former delights, carrying his head in his hand.

Behind the gilt-room is the "Sir Joshua room," which is also called the "crimson drawing-room," from the color of the silk upon the walls. Among the portraits in this room are the "Musciplua," Charles James Fox, and several other portraits of the Holland family, Baretti and the famous picture of Lady Sarah Lennox, Fox and Lady Strangeways.

But the room of all others in Holland House which has been most heard of is the library; "that venerable chamber," says Macaulay, "in which all the antique gravity of a college library was so singularly blended with all that female grace and wit could devise to embellish a drawing-room." The walls are lined with bookcases, Cordova leather, about three feet deep, running along the upper part. The cornice is of oak, illuminated in gold, blue and other tints, with monograms and coronets at intervals. The ceiling is divided into seven vaulted compartments, set in oak, with a groundwork of blue, which is relieved by gold stars, and the compartments have alternately a skylight and a chandelier. Addison's table is now in this room — the very room, it has been said, "in which Addison is described to us, pacing to and fro; tradition (perhaps exaggeration) adds with a bottle of port at one end and a bottle of sherry at the other, in which he tried to drown dull care." At the northern end of the library is the inner library, well furnished with books, and containing some valuable portraits.

HOLLAND HOUSE, SOUTH FRONT.

HOLLAND HOUSE, EAST FRONT.

TURKISH BATHS, BLACKBURN AND BOLTON, ENG. MESSRS. STONES & GRADWELL, ARCHITECTS, BLACKBURN, ENG.

WE this week give views of Turkish baths at present in course of erection, one in Richmond Terrace, Blackburn, and the other in Great Moor Street, Bolton. The front of buildings, in both cases, will be of deep red brick, with buff terra-cotta dressings, from Messrs. Clark & Rea, Wrexham, for the Blackburn building, and from Burmantofts Company, Leeds, for the Bolton one. The internal arrangements are on the most approved plan, and the various bath-rooms, hot-rooms, etc., will be fitted up in the best possible manner. Both baths are being built for limited companies.

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

THE DARK AGES IN BOSTON.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — In response to Mr. Warren's reference to the article which was headed "The Dark Ages in Boston," I feel that, as Mr. Warren did not entirely understand my attitude, perhaps a word of further explanation is necessary. I acknowledge it is easy to condemn and difficult to create; that there is nothing more petty than the cynic who sneers and does nothing else, nothing more contemptible than the would-be critic who cries "wolf" and contents himself with agitating his listeners. I had thought that the first paragraphs of that article had summed up the faults to be found in the examples afterwards cited. They were directed at a class of designers who, by their choice of motives, by their very use of those motives after choosing, are, to say the least, ungrammatical, and to say the worst, are doing much to vitiate what taste is inherent in the community. The bad quality of their work was not in degree but in kind — and I had intended (I evidently failed) to define the kind before I spoke of the subjects to which that definition applied. Mr. Warren wishes me, I am sure, to define what people should approve, and not only what they should not. He will find in the remainder of the article several buildings most heartily approved, and one in particular, the building on the corner of Tremont and West Streets, which has everything which the Boylston Street buildings have not. The comparison speaks louder than any definition could do. The article in question has also called forth many inquiries as to what right I have to condemn in such a wholesale manner. That right is a wholly impersonal one, and worthless and invalid, unless backed by laws of good design which are unquestionable. My claim is that such laws exist, that they are comparatively unconsidered by the community, that they are violated constantly by the profession of architecture, but that when they are considered, they are acknowledged as of great value in the result by most persons, professional or otherwise. That those laws are primarily constructive laws, and secondarily, laws of proportion, of scale, of values of light and shade and of color, and that though they are not necessarily simple to understand, their result is always simple in effect, and that any great departure from those laws is sure to result in inferiority of design. Mr. Warren wants an exposition of those laws. I have cited examples where they have been abused — it remains to cite examples when they have obtained. No one can do that better than Mr. Warren. C. HOWARD WALKER.

THE VENTILATION OF RAILROAD CARS.

CAMDEN, N. J., April 6, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Can you advise me whether the exhalations from the body (the breath, sweat, etc.) are supposed to rise or fall? this without regard to the heating or the temperature of a room filled with people.

I am looking into the ventilation of railroad cars, with windows closed, by "Exhausts" in the ceiling of the car; and "Intakes," either in the sides over the windows, or (which is objectionable) in the floor.

Will the air in the lower part of the car, that is occupied by the people, be satisfactorily changed by the ample change of air in the top of the car — say there are satisfactory Intakes a foot below the ceiling in the sides of the car, and a similar quantity of Exhausts overhead in the ceiling — will this change of air overhead manifest itself below in a car?

Your ideas in reply to these two questions will much oblige,

Yours truly,

R. M. PANCOAST.

[IN an unventilated room heated to about ninety degrees, the breath would neither rise nor sink, but would diffuse itself in all directions through the surrounding air. In a room at ordinary temperatures, the breath will rise, rapidly at first, and more slowly afterwards, as it loses heat, diffusing itself meanwhile in the air about it. In a small room, this movement, which is assisted by the upward flow of the air warmed by contact with the body, carries the fouler part of the air in the room to the ceiling, whence it gradually returns from the sides of the room, through the chilling which it receives by contact with the cold walls. Throughout its whole course, the foul air is continually mixing itself by diffusion with the remaining part of the atmosphere, so that the degree of foulness is only relative.

The rapid change of air in the top of a car would, we think, be advantageous, as it would remove the accumulation of hot, foul air which usually collects in the upper portion, fed by the lights, and the breaths and exhalations of the passengers, and which spreads by diffusion into the fresher atmosphere below, much to the discomfit of the occupants of the car. That it would give perfectly satisfactory ventilation we are hardly prepared to say, as it leaves the passengers with only such air to breathe as has crept in at the doors and circulated for a season among their boots, with a little aid by diffusion from the fresh supply above; but we know the great difficulty of introducing fresh air at any point where the current can strike the body, without producing unpleasant draughts, and the plan proposed would at least have some merits. — EDS. AMERICAN ARCHITECTS.]

NOTES AND CLIPPINGS

THE SHOT-TOWER INVENTED IN SLEEP. — Before Watts had his dream, the making of shot was a slow, laborious and consequently costly process. Watts had to take great bars of lead and pound them out into sheets of a thickness nearly equal to the diameter of the shots he desired to make. He then had to cut these sheets into little cubes, place the cubes in a revolving barrel and roll the barrel around until by the constant friction the edges wore off from the little cubes and they became spheroids. Watts had often racked his brain trying to discover some better and less costly scheme, but in vain. Finally, after spending an evening with some boon companions at the ale-house, he went home and went to bed He soon fell into a profound slumber, but the stimulants he had imbibed apparently disagreed with him, for his sleep was disturbed by unwelcome dreams. He imagined he was out again with the "boys," and that as they were stumbling homeward in the dark it began to rain shot. Beautiful globules of lead, polished and shining, fell in a torrent, and compelled him and his bibulous companions to drag their heavy limbs to a place of shelter. In the morning when Watts arose, he remembered his dream. He turned it over in his mind all day, and wondered what shape molten lead would assume in falling through the air. These thoughts tormented him so persistently that at last, to set his mind at rest, he carried a ladleful of molten lead to the top of the steeple of the Church of St. Mary of Redcliffe and dropped it into a moat below. Descending, he took from the bottom of the shallow pool several handfuls of the most perfect shot he had ever seen. Watts's fortune was made, for he had conceived the idea of the shot-tower, which ever since has been the only means employed in the manufacture of the little missiles so important in war and sport. — *Mechanical World.*

PHOTOGRAPHY IN NATURAL COLORS. — If the statements in a communication to the Académie des Sciences by M. Lippmann are substantiated, another step toward the solution of the problem of photographing objects in their natural colors have been made. M. Lippmann's method is remarkably simple, and makes use of the ordinary reagents. The

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sensitive film during exposure is floated on the surface of mercury. Suppose now a ray of blue light for instance strikes the sensitive film, it will pass through, and being reflected from the surface of the mercury behind, will pass out through the film again, interfering on its way with the incident ray. When the two rays are in the same phase, their effects will be additive, and the sensitive matter in the film will be strongly acted on. At a small distance farther on the two rays will neutralize each other, so that the film is there totally unacted on. In this way the thickness of the film is divided up into layers, on which the light has acted, half a wave-length apart, and hence when fixed and dried, it may be considered as consisting of a number of thin plates, of the half the wave-length of blue light in thickness, and will, therefore, give rise to a blue color when seen by reflected light, just as the thickness of a soap-bubble gives rise to the colors seen in it. Such is a general sketch of the process as described by M. Lippmann, who adds, however, that the sensitive silver salt, iodide, bromide, or whatever else may be used, must be distributed throughout the film in an almost infinitely divided state, and in a perfectly continuous manner. The film itself must be transparent. Owing to the fact that the thickness of an ordinary film is many times the wave-length of a ray of light, the colors obtained are said to be remarkably brilliant. They are moreover perfectly fixed, and the prints have been exposed both to a powerful electric arc-light and to bright daylight without any signs of fading. It should be added that if the prints are viewed by transmitted in place of by reflected light, each color is replaced by its complimentary one. — *Engineering.*

An Embargo on Works of Art. — While Americans and Frenchmen have been competing in a friendly way to secure the monopoly of excavating the artistic productions buried in some districts of Greece, the Italian Government has been prohibiting the transportation abroad of any artistic masterpiece. The Rome correspondent of the Paris *Figaro*, recently wrote as follows on this subject:

There is much excitement among artists, purchasers of ancient paintings, antiquarians, etc. The question is rather curious and of great importance; it relates to what is called here "the Pacca edict," which is the only law of the Pontifical Government maintained by the new masters of Rome. This Pacca edict, a Draconian one, forbids the exportation from Italy of ancient masterpieces and of antiquities having an acknowledged artistic value. An example will make me better understood.

A person owns a Raphael: and, being in need of money wants to sell it, and finds a wealthy foreigner anxious to buy the painting. "Stop there," cries the Government. "That work is included in the category of those which, according to the Pacca edict, cannot be exported from Italy."

"Well, if the law gives you a preëmption right, purchase that Raphael yourself, and appoint a jury which will fix its price."

"I don't ask anything better, but, at this moment, the condition of finances—"

Then, even if I am in straitened circumstances, I am compelled to keep that work, which represents an important capital, and the sale of which would put me out of embarrassment!

That's the law.

Dura lex. And, naturally, a great agitation is raised over a demand for the abrogation of that law, the existence of which was undoubtedly justified seventy years ago, when Cardinal Pacca published his famous edict. The Pontifical Government felt compelled then to put a stop to the really disquieting dispersion of works of art. But a few years later the exportation frenzy had ceased, and without being legally abrogated, the Pacca law had fallen into disuetude. Nobody thought any more of it, but now the Italian Government has considered it necessary to put it again in operation. People are now petitioning for its abrogation, finding it annoying that the State should oppose any sale of works of art, or antiquities, in regard to which it does not intend to use its preëmption right. It happens, for instance, that, among others, Prince Borghese, who has made bad speculations, cannot derive any assistance from his admirable collection of paintings and works of art of all kinds. There is certainly an abuse in that. — *New York Tribune.*

To Color Brass-work. — A beautiful violet color is imparted to brass-work by the application of chloride of antimony, says a writer in *Work*. Get the work perfectly bright and clean by the usual methods, either in a lathe or by dipping, etc.; heat it over gas-flame or spirit-lamp, so that water will steam off it but not fizz, and then apply the chloride of antimony liquor with a piece of rag or pad attached to a piece of wood; when the metal has assumed an even color, polish by rubbing with a soft cloth perfectly clean and dry, and protect with a coat of clear lacquer. Should you prefer a darker color use either of the following recipes — (1) To one part oxide of iron, or iron filings, add 1 part arsenic and 12 parts hydrochloric acid. Dissolve the oxide of iron or filings in the acid, then add the arsenic, strain, and bottle for use. (2) One pint of strong vinegar, one ounce of sal-ammoniac, one-fourth ounce arsenic, one-half ounce alum; dissolve in the vinegar, and bottle. These mixtures are to be applied in the same way as chloride of antimony, and, as you are doubtless aware, the ultimate shades may be varied by treating with various lacquers. In all cases the work should be polished with a dry cloth immediately the desired color is obtained, and in the case of the two latter recipes the work should be lacquered at once; but with the chloride of antimony this is not essential. With regard to Florentine bronze the only recipe I know of is the following: The work having been finished bright and clean is covered with a coating of copper. Now make a paste with Spanish brown 12 parts, and black lead 1 part, in hot water. Dissolve a small quantity of oxalic acid — say as much as will fit on a sixpence — to one-half a pound of other ingredients, also in hot water, and thoroughly mix the whole; thin with hot water to a workable consistence and apply with a soft brush. When dry, polish with a medium brush. This done, the work is ready for lacquering, a pale lacquer being employed.

The Uses of Sawdust. — Sawdust seems coming to the front most wonderfully in various ways. The *Brick, Tile and Potteries' Journal* says that a French writer recommends the use of sawdust in place of the hair usually mixed in mortar. He made a composition of two parts sawdust, two parts of lime, five of sand and one of cement, which he alleges is very firm and will not peel off. It also states that the Technical Royal School at Charlottenburg has been making a series of experiments with sawdust, and has now proved that it can be used as building material. The sawdust is mixed with certain refuse mineral products, and compressed with a pressure of 1,500,000 kilogs, to the quadrameter into the form of bricks, and, after this treatment, the sawdust forms excellent building material, very light, impervious to wet and utterly uninflammable. A slab of this substance was placed for five hours in a coal fire, and came out of the test intact.

Sulphur for Extinguishing Fires. — A French savant suggests a new method for extinguishing incipient fires. He says: "The most simple and efficient of all substances for fire extinguishment is sulphur. This, by heat, absorbs oxygen and forms sulphurous acid, the fumes of which are much heavier than the air. The quantity required would be small, since 70 grammes of sulphur can make 100 cubic metres of air unsuited to aid combustion. Besides sulphur, which gives every satisfaction, both in its effects and from its low cost, we find a similar property in another active and cheap substance, ammonia. An automatic sulphur-extinguishing apparatus can be made of various forms. One consists of a large sheet-iron box of moderate depth and open at the top, hinged at one end or side to a protected ceiling and kept close up thereto by a cord or wire connected with a wire or strip, formed chiefly of cadmium, fusing at 144 degrees F. Inside the box is to be placed a considerable quantity of cotton wadding containing much powdered sulphur. On the heat of an incipient fire melting the wire or strip the box drops a short distance, a simple device at the same moment ignites the cotton wadding and a strong cloud of sulphurous acid gas is instantly evolved, extinguishing the fire by rendering the air unfit for combustion. — *Invention.*

[It would probably cost a fireman his life to enter a building after this apparatus had done its work.]

TRADE SURVEYS

The volume of business being transacted throughout the country is about ten per cent below that of last year at this time, according to bank clearings. The total clearings for three months, so far as reported, show a decline of about nine per cent. Just at present, there are no indications of an immediate improvement. Business men are finding explanations for the dulness, which, while they may explain, are not at all satisfactory. Prices are still weak, and in some quarters there is a feeling that they will decline still further. Fortunately, labor agitations are not seriously threatened; rates of wages are becoming more fixed and stable in the various industries; grievances, as they are termed, are being quietly adjusted. Meanwhile, manufacturers of all kinds are quietly strengthening their organizations, and are acting more in harmony than ever. In addition to this, there is a stronger disposition among employers generally to render justice to employés, and to recognize many of the demands in advance, which in years past has been the beginning of bitter and frequently fruitless agitations. Of course, business men generally are anticipating an early and a general improvement. If called upon to give reasons for their faith, they would be unable to do so, excepting in a general way. The country has been expanding for years, they would answer, and an expansion must continue. They overlook certain influences which may or might postpone a general improvement for a long time. Reactionary periods have occurred, and may occur again; between 1873 and 1878 but little progress was made. The country was paying debts contracted by previous mistakes. The experience learned then has been since applied, and evils have been avoided that might have poisoned the blood of the body politic. It must be kept in mind that there are still dangers to be encountered. The farming organizations protest against some existing conditions, and policies have been commented upon very widely, but no effort is being made by either of the great political parties to place themselves either in harmony or in direct antagonism to this useful body of producers. One party cannot do so, and the other is unwilling. Business men recognize the possibility of a troublesome outcome if the agricultural classes succeed in upsetting both political parties, which is the programme in hand, if there is any. Constant interference of legislation with economic policies, with financial policies and with the general conduct of the Government is more or less hurtful, and would be especially hurtful if of a violently revolutionary character. Such a revolution is threatened. Financial men dread it the most. Manufacturers think they can survive, no matter what happens. People need machinery and supplies, and will have them. It is to be regretted that fundamental principles which affect the business interests cannot be established. Perhaps more account is taken of these agitations than they merit. Despite these constant agitations, the country has made rapid and wonderful progress. Our latest information from Southern points is that the spirit of investment has not been checked, excepting so far as railroad-building is concerned, in the Southern States. There has been an increase in new enterprises. In the lumber regions of the Northwest the winter has been one of great activity, and of good authority it is learned that a larger supply of logs is now waiting demand than has ever been furnished. The furniture manufacturers of the country are also armed to the teeth, so to speak, with material and with equipments for a busy year. Wagon and carriage makers are looking forward to an excellent season. Notwithstanding cereal products have not brought high prices, the farmers are getting ready to farm more and buy what they need. Railroad managers, while not extending their mileage, are putting existing mileage into better condition. Electricians report a heavier demand for their services and their equipments, and the large establishments are all now working to the limit of their capacity. The iron trade is still in a dragging and unsatisfactory condition. Textile interests report a favorable distribution of products. Hardware manufacturers have no complaint to make, excepting that competition is keeping prices rather low,

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THE New York *Times*, in speaking of the resignation of Mr. Windrim, expresses itself very strongly in favor of the abolition of the present system of designing Government buildings, and calls upon the architectural profession "to force the subject upon the attention" of Congress. Hitherto, architects, while they have often discussed in private the absurdities of Government architecture, have disliked to put themselves forward in urging a change which, while beneficial to the country, would also be of obvious advantage to their own profession; and the Conventions of the American Institute of Architects, in recognition of the demands made upon them, have always contented themselves with passing mild resolutions, usually commending some official expressions or suggestions coming from the Supervising Architects themselves, who, curiously enough, have been the most prominent and consistent advocates of the abolition of their own office. In the present temper of the public, an indication of which may be found in numerous editorials, agreeing with that of the *Times*, which have appeared in the daily papers, it seems to us that the profession would do a public service by putting itself vigorously forward in advocacy of a change, the importance of which, in the interest, not only of the advancement of American art, but of economy of the people's money, it is best able to understand and explain. The *Times* editorial shows clearly that people who think anything about the subject suppose that the architects should naturally lead in the movement, and are waiting for them to do something about it, and that if they remain supine, no one else will do anything. As the sentiments of the Institute on the matter have already been several times put on record, all that is necessary now is to do something to give effect to those sentiments, by urging them, not on the thin air, in the form of Convention resolves, but on the people who have the power to make the change desired, that is, on the President, the Secretary of the Treasury, and the Members of Congress, by means of a small and influential committee, appointed at once by the Executive Committee of the Institute, to confer with the members of the Government, with a view to securing higher artistic merit, and greater economy and efficiency, in the designing and construction of the National buildings. The President of the Institute, whose name is as highly honored on the other side of the Atlantic as on this, should, of course, be a member of the committee, and might be depended upon for earnest and effective service, and, with two or four more members, armed with proper authority, could make the influence of the Institute felt in a most beneficial way. What the committee would recommend as a substitute for the present system would be best left to their discretion. The *Times* suggests a plan which is somewhat similar to one proposed in these columns some months ago. It says that "the design of important public buildings should be determined either by competition under fair and attractive terms, or by the designation of local practitioners as Government architects for their several districts." We should prefer to modify this a little, by having the title of Government architect dependent, not on "designation" by the President, at the instance of Members of Congress, but on selection by experts, as a reward of professional attainment, to which all architects should be equally entitled to aspire. Moreover, instead of appointing one Government architect in a district, and giving him charge of all the public work in that district, the title should be, as it is abroad, bestowed upon all who have proved their claim to such distinction, and need carry with it nothing more than a certificate of qualification to carry out Government work. This would still be a professional advantage worth working for, even though, as often happens abroad, the possessor of the title may never be employed on any Government building. With us, however, it is worth considering whether Government competitions might not with advantage be restricted to architects who have earned the official title, and who have thereby been proved to be capable of carrying out with skill and success the commissions awarded them. The Government has not always been fortunate with architectural competitions open to all the world, and there is a strong feeling against them at Washington, which could be reconciled with the wishes of the public and the profession in some such way as this, to the advantage of every one. As to the Supervising Architect himself, the *Times* thinks he should remain, but as general supervisor, not as designer, and that his post should be made more comfortable, and his services should be better paid. There would probably be enough for him to do in consulting with the local architects, and approving contracts, but the costly and inefficient machinery of designers, assistant designers, computers, assistant computers, and so on, by which the Government designs have hitherto been ground out, has no excuse for existing, and should be cleared away without delay.

THE Secretary of the Treasury has chosen Mr. Edbrooke, of Chicago, Supervising Architect of the Treasury Department, to succeed Mr. Windrim. Mr. Edbrooke is an architect of much experience, and is said to have been strongly recommended by influential Members of Congress. Among the other candidates, Mr. Hornblower and Mr. Windom of Washington and Mr. T. Roney Williamson of Philadelphia, seem to have been the most prominent. Mr. Windom is, however, said to have modestly disclaimed any wish to occupy the office, and Mr. Hornblower whose selection would have been highly approved by the profession, labored under the disadvantage of being a resident of the District of Columbia, which deprived him of political backing. Mr. Williamson would have made a brilliant official and is said to have been recommended for appointment by Mr. Windrim, but he is a young man and without much reputation, as yet, outside the profession. We trust that Mr. Edbrooke will increase the honor which the incumbents have, of late years, done to an ill-paid and troublesome office. It is, by the way, rather strange that some of the daily papers do not notice how totally the fact that such good men can be had as Supervising Architects discredits the absurd tales which lately floated about the country in regard to professional incomes. The public was told, not long ago, and was inclined to believe, that prominent architects often earned one or two hundred thousand dollars a year, and that a thousand dollars a week was a common income for a city architect; yet Mr. Windrim and Mr. Williamson, who both rank, in reputation, in the profession, among the first dozen or so of the architects in the great

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city of Philadelphia, find a salary of forty-five hundred dollars a year inducement enough to give up all their clients and business relations, and remove to a distant town, where they will be precluded from forming any new connections in the way of private practice and will have no certain prospect before them but that of being unceremoniously turned out in a few years, perhaps with the aid of some trumped-up scandal, to make room for a new incumbent. The fact is, that the profession of architecture is a hard and poorly-paid one. A man, particularly a young man, who could be sure of earning three thousand dollars a year at home, among his friends, in a large city, where his connection would be likely to extend, would be foolish to abandon his prospects for the office of Supervising Architect, and that so many good men have been obtained simply shows that the professional income of the ablest men is a very small one — a mere fraction of what would be earned by a lawyer of corresponding intelligence and attainment, with equal labor.

WE learn with great regret of the death of Mr. Herbert C. Burdett, of Buffalo, N. Y., one of the most brilliant and successful of our young architects. Mr. Burdett was, we think, a graduate of Harvard College, and was for a long time in the office of the late H. H. Richardson. He went into business on his own account in Buffalo, as partner with Mr. Marling, and the firm of Marling & Burdett soon obtained a high reputation for clever and original work. Several of the buildings of the firm have been illustrated in our pages. One of the most recent and successful of all is the house of the Calumet Club, on Delaware Avenue, Detroit. Although of a quiet and thoughtful disposition, he was very popular in and out of the profession, and will be greatly regretted, not only in Buffalo, but among architects throughout the country.

THE *Pall Mall Gazette* tells a good story of the artist Whistler. Not long ago, the Corporation of Glasgow, which owns a good collection of Dutch pictures, but no modern ones, made up its mind that a few paintings of the present age would be good things to add to its gallery. The news got about that the Corporation was in the market for modern pictures, and a memorial was sent to it signed by Sir John Millias, Mr. Orchardson, and a great many other distinguished artists and amateurs, advising the purchase of Whistler's portrait of Carlyle, which was for sale at a thousand guineas, — not much over five thousand dollars. The price was acknowledged to be reasonable, but Scotch corporations are quite as business-like as similar bodies in other parts of the world, and a deputation was sent to buy the picture, but, if possible to get a reduction from the price. Mr. Whistler received his visitors politely, and was evidently gratified at the long list of distinguished names signed to the recommendation of his picture, so that he probably bore the haggling of the deputation more placidly than he might have done under different circumstances. The first move of the committee, in accordance with the usual business rules, to affect disappointment at the painting. "It is not a brilliant picture," said one, "it is not highly colored." "Am I brilliant?" replied Mr. Whistler, "or are you highly colored? We are very ordinary looking people. The picture says no more." The critic then changed his ground, and inquired if the portrait was life-size; as if he suspected that some material had been fraudulently saved. The artist blandly explained that no portrait was measured life-size, but that the expression meant that the subject was represented as he would look, without diminishing or magnifying. Thus defeated on artistic points, the bargainer resorted to chemical hypothesis. He inquired whether the colors in modern pictures did not fade badly, as compared with those in works by the old masters. It may be doubted whether Mr. Whistler would have made any considerable discount from the price of his picture on this ground, even if the suggestion had been justified, but he replied, with asperity, that "modern pictures did not fade, and therein was their great damnation." The committee could not think of any further objections to the picture, but left the artist with the request that he would take into consideration the necessity for strict economy in corporation expenses, and let them know the next day, when they would call upon him again, whether he could not make a reduction in the price under the circumstances. The next afternoon they appeared again, and inquired whether Mr. Whistler had thought over the matter of the price of the picture. The artist seems to have been in good spirits, probably at the reflection that his adversaries had not gained much advantage over him so far; and replied gayly, "Gentlemen, I have thought of nothing since I saw you but of the pleasure of seeing you again; and, now that you are here, let us talk and be happy." This greeting disconcerted the committee, who could find nothing in their *repertoire* of business arguments to oppose to it; and they went home convinced that the picture could not be had for less than the asking price; and, let us hope, that it was well worth it.

THE *Wiener Bauindustrie-zeitung* says that the largest picture in the world has been found in an ancient Buddhist temple at Petschaburce, in Siam. The picture, which represents Buddha reclining, is painted on a brick wall which is plastered, lacquered and gilded. The figure is one hundred and forty-five feet long. The arm is seventy-six feet long from the shoulder to the tips of the fingers; and the ear is fourteen feet long, and the other dimensions are in proportion. The eyes are of mother-of-pearl, and the head is covered with natural hair. No one appears to know the age of the picture, but it is visited by thousands of pilgrims every year.

THE *Wiener Bauindustrie-zeitung* says that it is now fully determined to complete the great Siberian railway, which will connect European Russia with Vladivostock, on the Pacific Ocean. It is proposed to make Tiumen, the convict station about which Mr. Kennan has told us so much, the starting point of the Government line, leaving the connection, across the Ural Mountains, between Tiumen and the railway system of European Russia, to be made by a private company, which is ready to undertake the task. From Tiumen the great Siberian line is to follow the River Obi to Tobolsk, which is a flourishing city, and from Tobolsk it will run easterly to Tomsk, and thence to Krasnoyarsk, on the River Yenisei. From Krasnoyarsk it will run southeasterly to Irkutsk, passing close to the Chinese frontier. Here the engineering difficulties begin. After curving around the southern end of Lake Baikal, which, it will be remembered, is about as large as Lake Michigan, the line reaches Verkoi Udinsk, and begins the ascent of the Yablonoi Mountains, which separate it from Nertchinsk, the next place of importance on the route. Nertchinsk is on a branch of the Amoor River, and the line follows the river valley thence to the confluence of the Ussuri, which comes from the south and forms the boundary between Russian and Chinese territory; and up the Ussuri Valley, and across the coast range of mountains, to Vladivostock. This, the terminal point, is destined some time to be a place of great importance. It possesses perhaps, the best harbor on the Pacific Ocean, and one of the finest in the world. Its latitude is very nearly the same as that of Marseilles, although its climate resembles that of Chicago or Boston, rather than that of the south of France. The coast of Japan is about a day's sail away, across a quiet sea; the principal Chinese ports are not far off, to the southward, and San Francisco is about five thousand miles to the eastward. On the land side, Vladivostock is sheltered by a range of mountains covered with dense forests, and said to contain gold, while behind the mountains flows a river which is navigable nearly two thousand miles from the sea. Whether the new railway from Europe would bring passengers from England to India or Australia is doubtful, but it would undoubtedly be preferred as much the quickest and most comfortable route from any part of Europe to China and Japan. We can hardly realize that with the completion of this great line the earth would be, with the exception of less than five thousand miles on the Pacific, and considerably less than three thousand on the Atlantic, encircled with iron rails, and the journey around the world ought to be easily accomplished by our children in five or six weeks. What the effect will be on the development of Russia, and particularly of Siberia, can only be imagined. From the best accounts, Siberia seems to be a country of great natural resources, inhabited by a manly and active population, which is rapidly increasing; and the future of the world is likely to have a good deal to do with the history of an empire which now approximately equals, in territory and population, the whole of North and South America combined.

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FRENCH ARCHITECTURE.[1] — III.

RELIGIOUS SOCIETY FROM THE FIFTH TO THE TWELFTH CENTURY.

IN primitive Christian times, the Church was made up of faithful believers, who were without distinction as to prerogatives or privileges and were under the wholly spiritual guidance of the Apostles. Later, a more complicated organization was introduced, with distinct functions assigned to a few chosen individuals, namely, elders or *presbuteroi*, magistrates who afterwards became the priests; the *episcopoi*, overseers and inspectors, who later constituted the bishops; the *diaconoi* or deacons, with lay powers as it were, and entrusted with the administration of the common property and the distribution of alms to the poor. The government of the Church was still quite democratic, for the faithful themselves chose and appointed from their own number the various magistrates and also decided questions of discipline and even of doctrine in their assemblies.

By the beginning of the fifth century, these functions were already much more sharply divided and defined; a genuine hierarchy was established; not only the administrative and judicial powers, but at the same time the cognizance and decision of all questions of doctrine were gradually withdrawn from the mass of the faithful and confided exclusively to the clergy, who thenceforth possessed an independent organization. "There exists a clergy distinct from the people, a corps of priests, with their wealth, jurisdiction and separate constitution; in a word, a complete system of government, forming in itself a society provided with all the means of existence, and independent of the society to which it is attached and over which its influence is extended." Its original democratic character had disappeared and the Church, or rather Christian Society, had become in a measure aristocratic.

If we wish to take a broad survey of the history of Christian Society on French territory, we must consider both the situation which it conquered in the Empire, and its influence and power. With the Christian emperors, it had subjugated paganism, and at a later date, under Thedosius, it had overcome the Arian heresy, which for a time proved a dangerous rival; it then occupied an important place in the counsels of the government, and was justified in assuming that its temporal power as well as its spiritual was absolute and definitively secured.

The invasion of the Goths, Vandals, Burgundi and Franks, and the downfall of the Western Empire threw the government of Gaul into the hands of barbarian hordes — a descent from the heights to the lowest abyss. Christianity did not, however, lose courage, but made use of the fallen edifice as a foundation for another structure. Several centuries were employed in converting the invaders; in this work the clergy knew how to turn to advantage the prestige exercised over minds unused to such splendor by the pomp of religious ceremonies, as well as the terror inspired by miracles wrought in punishment of profanations: in the long line of chroniclers from Frédégaire and Gregory of Tours down to the twelfth century, we encounter nothing but tales of sudden deaths, leprosy, paralysis, loss of reason and fatal accidents, by which the barbarians who had dared to violate and pillage the sanctuaries, or lay hands on the clergy, were smitten down.

Conversion once accomplished, the leading spirits among the clergy turned to the barbarian chiefs and kings, and, to gain influence in their deliberations, tempted them with reminders of imperial pomp; the Church besought these rulers to make themselves Roman emperors, to assume all the rights of Roman emperors, and to enter into the same relations with the Church which she had formerly sustained with the Empire. This was the work of the bishops in the fifth and sixth centuries.

While seeking thus to recover their original power, the Christian clergy rendered a signal service to modern civilization, for it was they who prevented the treasures of ancient civilization from being wholly lost while humanity was passing through that frightful period of murder and plunder, of which chroniclers have left us the deplorable picture.[2] Unfortunately the barbarism enveloping it on all sides crept into the Church itself.

A very important event in the history of the Church must not be overlooked here: at the time of the earliest barbarian invasions, and for a long period thereafter, the clergy had remained Gallo-Roman; but, in the eighth century, their ranks were entered by men of barbarous origin; the higher functions of the clergy were thenceforth exercised by the relatives and heirs of Germanic chiefs. Documents exist which in a way furnish written proofs of this fact; pious chroniclers have transmitted to us a complete list of the bishops in certain dioceses, from the time when, at the conversion of the invaders these dioceses were created. At Rouen, for example, we find the episcopal see occupied, during the first centuries by Mallonus, Avidien, Severus, Eusebius, Marcellinus, Petrus, Victricius, Innocentius, Evodius, Silvester, Germanus and Crescentius — names nearly all of which are unquestionably of Latin origin. In the eighth century, the names of Radiland, Hugues, a cousin of the Frankish prince Pepin, Radbert, Rainfroi, Remi, brother of Charles Martel, and Gillebert appear on the list; in the ninth century, Rainard, Gombaud, Wanilon, Adalard and Riculfe. After the Norman Conquest of England, we find the names of Hugues, Robert, son of Duke Richard le Vieux, Mauger, son of Richard II, and Maurille, a native of Mayence; in the eleventh century, John, son of the Count of Ivry and Bayeux, and the Briton Goisfred.[3]

The recruitment of the clergy had then undergone a complete transformation; instead of being confined almost exclusively to the ranks of the conquered people, it was carried into the very heart of the victorious race, and the higher offices, all influence and rule passed into the hands of the latter. This being the fact, the very organization of the Church, its spirit and customs, must necessarily have been deeply modified also.

In truth, the Church, like civil society, became feudal; not only was it penetrated by the warlike spirit of the conquerors, not only was the bishop often a military as well as a religious chief, holding fiefs which he took it upon himself to defend, if need be, and subjected to military obligations which he was bound to fulfil; but, in addition to all this the character of individual independence, that uncontrollable tendency to cast aside all permanent discipline and every hindrance to personal liberty which was so deeply rooted in the barbarian spirit, could not fail to set its stamp indelibly upon religious society, as it had done on civil society. "Individual interest assumed greater importance; love of independence and the customs of feudal life loosened the bonds uniting the ecclesiastical hierarchy. . . . Every bishop and prelate and abbey became more and more isolated in his diocese or his monastery. This was the time when power was most abused, when church livings were disposed of most arbitrarily, and when the greatest license prevailed among the priests."

The episcopate had soon carried its encroachments into every quarter, introducing everywhere barbarian manners and instincts. The inferior clergy in vain strove to retain certain rights and insure certain guarantees to themselves. The spirit of individual independence, pushed to its farthest limits, and the barbarian principle of disaggregation, which was opposed to all hierarchy, produced their fruits, and disorder was destined shortly to invade the Church as well as civil society. Each bishop governed his diocese to suit himself, and was generally despotic toward his inferiors and independent in the presence of superiors and equals.

Notwithstanding a few attempts at reform among the regular clergy, the monastic orders fell a prey to the same disorganizing forces.

The magnitude of the evil hastened the advent of the much-needed reform. Concurrently with the civil reconstruction which was initiated under the influence and with the support of the Carlovingian rulers, in the eighth century, a similar work of reorganization is seen going on among the clergy; Chrodegangus, Bishop of Metz, recognizing the impossibility of governing a widely dispersed clergy, all of whom lived in entire independence, with no common bond and no discipline, undertook to bring them under one rule, and to establish

[1] From the French of P. Planat, in Planat's "*Encyclopédie de l'Architecture et de la Construction.*" Continued from page 20, No. 796.

[2] All the more deplorable because it is evident that pious chroniclers, like Gregory of Tours, for example, strove to minify rather than exaggerate the outrages committed by the princes to whom the Christian bishops were forced to turn for the only support possible to them in the general wreck.

[3] Orderic Vital. This monk of the Abbey of Ouche was born in England, in 1075.

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regular associations modelled after the monastic orders, introducing into them the reforms already adopted by Saint Benedict. The institution of the order of canons was due to these efforts. The plan of organizing the secular clergy into chapters was carried into all the other provinces, where it had been equally called for. In 817 the council of Aix-la-Chapelle substituted a new rule for that adopted by Chrodegangus, and this was observed by the western churches till the twelfth century.

A period of prosperity immediately set in: "When the priests were seen closely confined and disciplined, and leading as regular and severe lives as the monks, the popular mass felt a great increase of respect for them and a new impulse was given to their own fervor. Gifts flowed into the chapters as into the monasteries. Never, perhaps, had so many churches been founded, never had they been so liberally endowed; most of the cathedrals grew rich rapidly, and many donations were made specifically to the canonical bodies, which had become a means of edification and objects of admiration."

A similar revival took place within the monasteries themselves, under the leadership of St. Benedict of Anian, at Gellone, on the island of Barbe, near Lyons, at Saint-Savin in Poitou, at Cormery in Touraine, at Mauermünster in Alsace, and elsewhere.

It was through the coöperation of the Carlovingian kings and the support of their authority that such a reform could be accomplished in the face of great local opposition from various quarters. In the struggle which they had gone into against the feudal régime, the kings had formed alliances with the home clergy, on the one hand, and with the papal powers on the other. For this reason, their conduct was continually marked by inconsistencies, although the aim of all their efforts was the same at bottom, namely, the extension and consolidation of their own dominion. Sometimes we see them acknowledging the supremacy of the Bishop of Rome over the turbulent clergy; sometimes, lending their sanction to the feudal tendencies of these same ecclesiastics, to separatist independence and to the organization of local committees and provincial assemblies, thus seeking to resist the encroachments of the Romish court; Hincmar found favor in their eyes, the Archbishop of Rheims, who, learning that the Pope contemplated a visit to France where he threatened to excommunicate the bishops, pronounced these memorable words: "If he comes for the purpose of excommunicating, excommunicated he will go away."

The spirit of independence, the "individual" spirit inherent in the races of the North was not subdued; it might be seen breaking out afresh, on every occasion, in the higher ranks of the clergy who, from that time on, came from the conquering race. No permanency of organization was compatible with these persistent tendencies toward disaggregation. Abuses and excesses consequently crept in again, which called for a new reform. This was attempted in the eleventh century by Gregory VII, a vigorous, despotic prelate who aimed at the reëstablishment of unity and centralization in religious society by means of force, as Charlemagne had aimed to do for civil and political society: Gregory VII's object was to reform the Church, and through the Church, civil society, — to raise the standard of morality, justice and order. To attain his end, he counted on the spiritual and temporal authority of the Holy See, which the Frankish kings themselves had helped to place on a firm foundation, and it was intended that the reform should redound to the glory of the papal power.

The abuses had now become so great that the need of reform was universally felt. While the secular clergy were undergoing transformation under the powerful hand of Gregory VII, the reforms of Saint Norbert among the canons, of Robert of Molême at Cîteaux and of Saint Bernard at Cluny were going on.

This new period of prosperity for the Church occupies all of the twelfth century and the first half of the thirteenth. It may be said that at this time the religious power attained its zenith, as the Crusades which were due to its mighty impetus, bear witness. But at the same time, as we shall see farther on, the causes had been developed which were about to check this impulse, abate religious zeal and lead at length to the ruin of that theocratic organization of which Gregory VII had dreamed.

RISE OF RELIGIOUS ARCHITECTURE IN THE MIDDLE AGES.

We have now covered the first period of our researches. After the downfall consequent upon the invasions of the fifth century and the succeeding centuries the conquering tribes as we have seen, settled in the country and little by little established the feudal régime which offered to barbarian society such organization as it was fitted to accept; side by side with these tribes, as has also been pointed out, the conquered people retained in part their primitive institutions, struggling desperately to defend their social and political existence, and, whenever a semblance of stability reappeared, giving signs of a deathless vitality.

On the other hand, religious society passed under the rude dominion of the barbarians; its leaders, the men of influence and authority, were thereafter to be drawn from the conquering race. Excesses of the gravest kind had well-nigh caused its ruin; but at the moment which we have now reached, energetic reforms had assured to it an era of real prosperity.

In a word, then, a social state, to say the least, tolerable, had at last been attained, and we must now ask ourselves whether, in view of the transformation already effected in the long period just passed over, a new art could have been conceived, what its nature might be, and where it would be likely to appear.

For a first time, at the end of the eighth century and the beginning of the ninth, Charlemagne had secured to the world a brief period of comparative peace, under a powerful and complete organization, modelled on that of the Roman people, which, for centuries even after its decline, had dazzled the eyes of the barbarians. A sort of pause in the incessant convulsions ensued; could a new civilization now rise out of the accumulated débris? Could that artistic efflorescence take place, which may be looked for in the conditions of peace and prosperity attendant upon the appearance of a new civilization?

Such hopes would have been premature. The advent of the Carlovingians was, in fact, merely a fresh invasion of the Franks of Austrasia, who drove back before them the Franks of Neustria; the ninth century, moreover, witnessed still another invasion, that of the Normans. In spite of the efforts of that colossal personality, Charlemagne, the instability consequent upon the disordered condition of affairs, was not sufficiently overcome for the creation, at that time, of a social state possessed of the elements of permanency.

Could a genuine revival of the Gallo-Roman civilization be counted on under these conditions? Assuredly not, for the situation of the subject peoples soon became so precarious that it was impossible for the traditional arts of Gaul to flourish once more among them.

Again, could such a degree of civilization be expected in the conquering race as would enable it to produce, in its turn, a creative art? Assuredly not, for the barbarians were as yet not fixed to the soil which they had just conquered, but were encamped there, on the defensive and always on the verge of fresh combats among themselves.

The conditions out of which a new architecture could grow were not yet realized. The lull that came under the reign of Charlemagne was, however, favorable to the arts; notably, it prevented Latin architecture from going to decay and disappearing immediately. Under Charlemagne's powerful protection the arts, as well as letters, were stopped in the downward path which would, perhaps, have led them to irretrievable ruin; owing to his encouragement and coöperation, and to the relations which he maintained uninterruptedly with the Orient, with the Byzantine and the Lombard world, Latin architecture could draw from yet living sources the vitality necessary to carry it through a few more centuries.

So true is all this that, on reaching the eleventh and twelfth centuries, we encounter conditions of superior stability and renewed prosperity, under which a genuine revival of Latin architecture took place, a revival which furnished a final and most remarkable florescence under the name of Romanesque architecture.

We will not dwell here upon its characteristics, nor upon its origin and developements, as these have already been presented under another head. We will merely remind the reader of the peculiar features of the style in the region lying to the south of the Loire — a region which had remained Latin in race, traditions and institutions — and in the section of the country above this stream, where the northern races, whether Franks or Normans, had the preponderance. It seems to us beyond question that Romanesque architecture originated in the Latin district, in the region where the oldest, the purest and the most finished examples of the style are to be found. But, as constant communication was kept up between the two sections, it likewise

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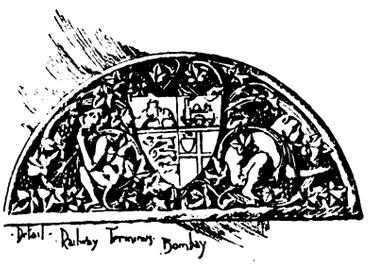
made its way north of the Loire; there it came in contact with races endowed with immense vitality and which, as early as the twelfth century, attained a state of civilization that enabled them to prepare, in their turn, for the creation of an art of their own. For this reason, as soon as Romanesque architecture entered the northern district, it underwent perceptible modifications and received the characteristic impress of these totally dissimilar peoples. The ancient tradition — the sentiment of proportion peculiar to it, and the special nobility, or cheerfulness and grace, constituting its distinctive feature — is easily traceable in the edifices of the south; in the north, very different forms and proportions at once appeared, and under a more severe aspect.

All these distinctions have already been emphasized, and we will not recur to them. But the fact must thus early be recognized, by the decisive manner in which the genius of the north set its seal on southern architecture, that it could not long be content with foreign inspiration, even though adapted to its own conceptions; evidently the period has been reached when an architecture untrammelled by tradition is about to appear.

This appearance, however, will not be due to chance; it will be subject to certain laws and will require certain favorable conditions, which we will point out here.

(To be continued.)

THE GUELPH EXHIBITION.[1] — III.



WE now enter the room, which, from one point of view perhaps better deserves to be called royal than the one strictly so named; since, wherever we turn our eyes they fall on the lineaments of one highly distinguished in Science, Art, Literature, or the Drama: Newton serenely regarding the puckered and anxious brow of Romney and Doctor Johnson frowning upon Handel, while the parchment-like visage of Hansard gazes all unmoved on the queenly figure of Mrs. Siddons.

Turning our attention first to Thornhill's portrait of Sir Isaac Newton

> "— a mind forever
> Voyaging through strange seas of thought, alone!"

We see the clear, piercing eyes and the well-defined features of his rather short face which is well set off by the long curls of his court wig. In this portrait as in a later one, unsigned, we notice the remarkably square chin, and, that though he is advanced in life, there appears no diminution in the marvellous faculties which he retained till the close of his long life.

Of two good portraits of Addison, by Kneller, the first, in which he wears a blue velvet coat and long fair wig, by the cheerful, easy-minded look on his handsome face, was probably painted before his marriage with the unappreciative Countess of Warwick. Though known as the chief founder of Classical English Prose, he rose to power and wealth by a fulsome panegyric on Marlborough, in verse. Also, by Kneller, is the portrait of Sir R. Steel, and a rather flattering one it is of the clever member of the trio of Essayists of whom Samuel Johnson was the last.

This portrait is neither the first nor the last that Reynolds painted of "one of the oddest and best men of genius that ever lived." Of one of the number — executed in 1777 — in which he is represented holding a book close to his eyes, as though he were short-sighted, Johnson writes to Mrs. Thrale (for whose own portrait we look in vain) "Reynolds may paint himself as deaf as he pleases, but I will not be 'Blinking Sam.'"

History is represented by Gibbon, who has a most repulsive face with a double or triple chin; also by Rev. Wm. Robertson, who, as author of the stately "*History of Charles the Fifth*" achieved a certain renown: in his fine portrait by Raeburn, lent by Edinburgh University, he wears the robes and wig of the Principal of the University.

Old Luke Hansard looks out from Lane's canvas with all the character in his face which brought him into such prominence as the Printer to the House of Commons. Benjamin Franklin's most interesting little portrait, lent by Earl Stanhope, is doubtless well-known in Boston, having been engraved.

A faded portrait by Knapton, signed 1748, of the distinguished amateur architect, the Earl of Burlington, depicts the "Grimthorpe" of his day, wearing the Garter with the ribbon and star, seated at a table on which stands a bust of Inigo Jones, a volume of whose drawings he holds. Hogarth satirized him and his friends in "The Man of Taste" in connection with his re-building Burlington House and Chiswick — at which latter house both Fox and Canning died, and of which Lord Hervey said "it was too small to live in and too large to hang to a watch."

Sir John Vanbrugh, witty and vain, who began life as a dramatist, is of course, well known as the architect of Castle Howard and Blenheim. In Kneller's portrait he looks very proud and pettish. An epigram of the time satirizing Blenheim concludes thus:

> "Thanks, sir, cried I, 'tis very fine,
> But where d'ye sleep, and where d'ye dine?
> I find by all you have been telling
> That 'tis a house but not a dwelling."

The Royal Society lends a wonderfully life-like portrait by T. Phillips, of Sir Joseph Banks, the zealous naturalist, who accompanied Captain Cook on his expedition round the world; having previously visited Newfoundland and Labrador. Seated at a table on which we see the mace of the learned Society, of which he was president for forty-two years, and wearing the ribbon and star of the Bath, he looks out to us, from the paper he is reading, with a face full of earnestness and vigor. From the same Society comes Kneller's "Sir Hans Sloane," who succeeded Sir I. Newton as president, and whose collection formed the nucleus of the British Museum.

There is an interesting portrait of Sir Richard Arkwright — the thirteenth child of poor parents — who, beginning life as a farthing barber in a cellar at Bolton, died a knight worth more than half a million sterling. A plain, matter-of-fact man, with prominent eyes, his left hand rests on a table, on which stands a spinning-jenney.

The Baroness Burdett-Coutts lends the portraits of Nollekins, R. A., by Harlow, and of Flaxman, by Derby; the former, of Belgian extraction, has a face strong and shrewd, that of the latter being characterized by quiet perseverance.

Fitly placed next that of Flaxman, is Sir Joshua's portrait of our great English potter, the founder of modern Etruria, Josiah Wedgewood, F. R. S., with whom the young sculptor long worked as a designer and modeller. The painting of the upright, thoroughly English face has, like many another work of art, fallen a prey to the restorer.

The unsigned portrait of Canova, lent by the Duke of Devonshire, is probably the work of Lawrence, judging by the far-away look in the fine eyes; since "a better painter of eyes could scarcely be found in early or modern art." It is doubtless one of two by him, for Lawrence, being dissatisfied with his first portrait, which he said was not one at all, executed a second, entirely repainting the head. When this one was mentioned in Canova's hearing, he exclaimed, "*Per Baccho! che uomo e questo!*"

"In the likeness of a poet we look for the presence of Poetry"; and we cannot but remark how the artists have been inspired by the poetic feeling in the characteristic portraits to which we now turn.

In this proud and rather handsome man, wearing a curious velvet hat, and who looks like a brigand, we see Matthew Prior, of course painted by Kneller, since he was lucky enough to gain an ambassadorship by his satire "The Town and Country Mouse."

"The pleasantest face of all the poets," said Thackeray, "is that of Gay," on the frame of whose unsigned portrait is this couplet:

> "Of Manners gentle and Affections mild,
> In Wit a man, Simplicity a child."

Lord Harcourt's "most precious portrait" of Pope is a marvel of shell-like transparency; the fine subdued red of the poet's cap on the weary brow, which he leans on the long delicate hand, harmonizes well with the charming green of his gown. It is painted by Kneller, and is described by Lord Harcourt "as the best portrait of him and one of the best works of that master." We know that in his highly polished verse Pope often wrote scathing satires, so, minus the polish, did those who could also draw the figure of a hunchback, and write under it "Pope." But with a change in gender, which his shade, we hope will forgive, we may apply to the portrait his own lines from "The Rape of the Lock."

> "If to *his* share some human errors fall,
> Look on *this* face and you'll forget them all."

A rather doubtful portrait, said to be "Chatterton at the age of thirteen," is interesting only on account of the luckless original, whose story appeals to all hearts.

The portrait of Goldsmith, holding a book, is familiar to all. Of it Leslie wrote: "In that thoughtful, patient face, the traces of a life of endurance, and the consciousness of being misunderstood and undervalued, are as unmistakeable as the benevolence, meditating how to amuse a world, which considered it a vulgar face." Shortly before the close of the R. A. exhibition of 1770, where it hung next to the portrait of Johnson, "*The Deserted Village*" appeared, with a dedication to Sir Joshua Reynolds.

Of Cowper we have three portraits, in all of which he wears the cap — placed with the relics — made of white cambric, doubtless by the fairy fingers of his cousin, Lady Hesketh, to whom he wrote so many of his most inimitable letters. Beneath the cap are the hare-like eyes and tremulous features of this nervous man. On one of Romney's two portraits of him Cowper wrote the sonnet beginning:

> "Romney, expert infallibly to trace
> On chart or canvas, not the form alone
> And semblance, but, however faintly shown,
> The mind's impression too, on every face."

[1] Continued from No. 795, page 183.

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Crabbe, who owed his rescue from penury to the prompt and substantial help rendered him by Burke, who got his works published, and set him on the road to fortune, looks cheerily up at us as though reciting one of his own "*Tales*," perhaps "Phœbe Dawson," which cheered the dying hours of C. J. Fox and Sir Walter Scott.

Campbell strikes us as a fitting exponent of the "*Pleasures of Hope.*" This quality seems to be lacking in the dreamy face of Southey, whose fine features, and dark hair and eyes suggest a Jewish extraction. In the face of Coleridge we remark signs of his characteristic irresolution and shiftlessness. These four portraits were from the easel of T. Phillips, R. A., while that of the last of the "Lake poets," Wordsworth, a very fine one, was painted for the poet's college, St. John's, Cambridge, by Pickersgill, at Rydal Mount in 1831, and is that of a man enjoying a life of learned leisure.

The magnificent portrait of Lord Byron, magnificently painted by Westall, is in strong profile and has "poet" stamped on every one of his fine features. Hanging below this is the equally grand Sir Walter Scott, by Raeburn, on whose canvas the sturdy features and form of the "Great Wizard of the North" live again. Compared with all the poets' portraits, and especially with that of Sir Walter, how almost girlish in its delicacy and beauty does the fair, oval face of Shelley appear, with those glorious blue eyes that illumine his fine countenance. This portrait was painted from life, in one sitting, at Rome in 1818, by Miss Curran. The posthumous portrait of Keats, by Severn, shows a fine face but cannot be called a success. We must pass S. Laurence's fine portrait of Leigh Hunt, Romney's Miss A. Seward and Hoppner's delicate and charming Henry Kirke White, and notice those of three letter-writers whose chit-chat so well paints their times.

The earliest of these was Lord Hervey, Lord Privy Seal to George II, of whose queen he was the confidant; a small-minded man, and delicate, as seen on Van Loo's canvas. A friend ascribed all Hervey's delicacy of constitution to "the use of that detestable and poisonous plant, tea, which had once brought him to death's door, and if persisted in would carry him through it." Hervey and his wife, the beautiful Mary Lepel, were satirized in the "*Dunciad*," where Pope called him "Lord Fanny."

Hogarth evidently caught, on the instant, the indescribable expression of polite scorn seen on the face of Horace Walpole, who, with his head tossed back, giving to the nose and chin a curious pointed look, seems to be having a quiet laugh at some one.

In Fanny Burney's portrait by her cousin, the small head of the slight, timid little creature, is quite overpowered by her large hat trimmed with a very mountain of bows, a symbol of the awe and reverence with which she regarded her royal mistress, Queen Charlotte, which has left its impress on her countenance.

Supreme among the interpreters of Shakespeare sits Mrs. Siddons, enthroned and immortalized as "The Tragic Muse" in Sir Joshua's famous picture which, besides its other charms, has that of most exquisite coloring. The artist signed his name on the hem of her robe. Harlowe's picture of the "Trial of Queen Katherine," though not altogether a success is very interesting as containing portraits of the whole Kemble family, besides Miss Stephens and other famous actors. Peg Woffington as "Penelope" does not look so charming as in her miniature.

Above the large head of Quin, his coarse face full of humor, hangs the fine portrait of "Kitty Fisher" with a charming air of simplicity thrown round her beautiful face and figure; while the lustrous eyes of "Mrs. Billington," are not the least attractive features in Hoppner's portrait of one, who was the most celebrated female singer of her time, and famous for her beauty. Hadyn was, in the latter part of his life, enamoured of this lady, and Sir Joshua painted her portrait for him as "St. Cecilia." When asked what he thought of the picture Hadyn said it was "beautiful, just like her; but there's a strange mistake." "What is that?" "Why you have painted her listening to the angels, when you ought to have painted the angels listening to her."

In Sir Joshua's altogether charming and exquisite portrait of Mrs. Hartley as "Elfrida," the calm, lovely face, with most melting eyes — in which is no trace of *diablerie* — would, by the tender expression in it, worthily represent a Madonna.

Of "the greatest of English actors," we have two portraits by Sir Joshua: one, lent by the Queen, painted in 1768; the second, lent by Lord Sackville, in 1786, when the actor was worn out by gout and many other troubles. In both we have an example of the artist's power of catching a momentary expression; in both we see the living Garrick in the twinkling eye, in the mouth, just breaking out into a smile, and the whole figure full of life and humor. There is also a canvas, representing Garrick seated at a table, while Mrs. Garrick, standing behind him, playfully stretches out her beautiful arm over his head to take the pen from his hand. Though both appear to be good portraits, Garrick was so dissatisfied that he quarrelled with Hogarth, who disfigured Garrick's face with his pencil. It was never paid for, but Mrs. Hogarth sent it home after the artist's death, and it ultimately came into the possession of George IV. Sir W. Beechey's portrait of Miss Harriet Mellow, afterwards Duchess of St. Albans, is interesting on account of the romantic history of the lady, to whom the Baroness Burdett-Coutts owes her vast fortune. Of this fortunate actress there is also a very fine miniature exhibited.

There are portraits of our famous song-writers, Charles Dibdin the inimitable author of nautical ditties, and Thomas Moore, the great master of lyrical poetry, the latter by Sir M. Shee's powerful hand.

The few musical composers will not detain us long. Oxford University sends a fine full-length portrait, by Hudson, of the somewhat conceited-looking writer of cathedral music, William Boyce, also considered by Lawrence one of Sir Joshua's finest works; that of Dr. Burney, F. R. S., the father of the literary Fanny, beside which is one, by Beechey, of Crotch as a youth.

Out of more than fifty known portraits of Handel, two are in this gallery; one is by T. Hudson, the other, decidedly superior, by Mercier, who has well delineated his fine, open countenance. Our little sketch would be incomplete without a word about the rival factions formed by the supporters of Handel and Bononcini, well put by Dean Swift in his famous epigram:

> "Some say that Signor Bononcini
> Compared to Handel is a ninny;
> While others vow that to him Handel,
> Is hardly fit to hold a candle.
> Strange that such difference should be
> 'Twixt tweedledum and tweedledee."

Of Handel's irascible temper we give one instance: "Cuzzoni one day refused to sing a certain air, and, having long been annoyed by her whims, he determined, once for all, to put a stop to them. He flew at her, gave her a good shaking, and cried: 'Ah, I always knew you were a fery tevil, and I shall now let you know that I am Beelzebub, the prince of de tevils.' He was then going to throw her out of a window, when she wisely submitted."

Hadyn looks a thorough German *Kapellmeister* in the single portrait of him lent by the Queen. It was painted by Hoppner for George III, probably when, in the height of his reputation, the great composer visited England for the second time in 1793.

We now proceed to notice the goodly array of artists' portraits, in almost every case the work of the originals.

That of Sir Godfrey Kneller — who, in his time, painted the portrait of nearly every person of note, besides those of famous foreign potentates — was given by him to the famous "Kitcat" Club, of which he was the recognized artist. We trace in Hogarth's portrait the characteristics of a man fitted to portray scenes of humor or comedy.

Two out of several painted by Reynolds, represent a good-humored, straightforward and unassuming Englishman, with much less of the courtier about him than is noticeable in the more imposing canvas on which the favorite of George III, Benjamin West, is discerned, and splendidly painted by himself.

In Angelica Kauffman's portrait we are struck by the strong resemblance she bears to the Empress Eugénie, both in face and figure, increased by the similar style of dressing the hair. This painting, as well as a charming miniature elsewhere, also by herself, is distinguished by great delicacy of handling.

What lover of English country life has not felt suddenly transported into its midst when gazing at one of George Morland's farmyard scenes? Pity that one who so truthfully depicted nature should have fallen a victim to intemperance at the early age of forty, followed in a few days by his wife, from the same cause! "Many of his best pictures were painted in sponging-houses to clear himself from arrest, or in ale-houses to pay his reckoning." This portrait of himself was given to the lady he wished to marry, but his drinking habits, as testified by the bottle and glass at his side, caused her to refuse him. The hat he wears, like that of an Irish peasant, has a broad brim, and casts a strange shadow over the shifty but humorous face.

Looking at the poetic portrait by Reinagle, of John Constable, we cannot but contrast the happy auspices under which he began his career with those of Morland, though he was long in receiving from the public the encouragement he merited. His patron, Sir G. Beaumont, once asked him what style he intended to adopt. "None but God Almighty's, Sir George." He could not have chosen a better. He used to say, "I love every stile, and stump and lane in the village, and as long as I can hold a brush, I shall never cease to paint them."

There is a great deal of wit seen in the face of Sir David Wilkie, in the interesting portrait by himself a year previous to his death, and just before he went to Constantinople to paint that of the Sultan.

From his own easel is the charming portrait of Gainsborough, an artist who, whether in landscape where he excelled, or in portraiture in which his style was pure and unaffected, tinged all his works with his own sentiment. He has been styled "the feminine to Reynolds's masculine."

Intellectual power, combined with refinement, characterizes the handsome face of the accomplished John Hoppner, a distinguished portrait painter and contemporary of the latter.

A well-known portrait is that of Sir Thomas Lawrence, who, at the age of ten was very clever at reciting Shakspeare and taking crayon portraits. Chancing once to be at his father's inn, when, as usual, Thomas was brought in to amuse the guests, Garrick clapped him on the shoulders and said, "Bravely done, Tommy, whether will ye be a painter or a player, eh?"

George III having insisted on it, Lawrence was made A. R. A. four years younger than the rules allowed, affording occasion for one of Peter Pindar's satires on "A King's Rights."

It is a pity that Sir M. Shee's cheery-looking portrait of Romney is not exhibited as well as that by himself. In this extraordinary

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picture, Romney has first painted the rather shadowy profile of his aged father against which, the heads touching, he has depicted the portrait of himself, a plaid covering both shoulders. The nervous irritation on the puckered face of the son, a foreshadowing of the utter imbecility in which his last days were spent, contrasts painfully with the calm, clever-looking brow of the father; and we fail to recognize "the poetic painter" whose originality placed his name in the front rank of great painters of his country. The town was divided into the Romney and Reynolds factions, as great rivalry existed between these two and Hoppner. Romney would not exhibit at the Academy, while Reynolds avoided all mention of Romney's name unless compelled, when he called him, "the man in Cavendish Square!"

Hanging next to the portrait of the very proper Miss Burney, is Lady Hamilton, Romney's "Divine Lady," who sat to him during four years from 1782, for the *head* which he painted under every possible guise. Of three of these presentments of her exhibited, one is the first he painted; and was executed at Ickwell Bury, near Hawarden, where, being engaged on the portrait of the mistress of the house he saw the lovely servant and asked permission to sketch her. She has a scarf tied round her forehead, and leans on a table, her head resting on her crossed hands. A totally different being to the one whose *riante* face is in another sketch, probably a bacchante. "Whatever may be urged to the discredit of Emma, Lady Hamilton, she was incomparably the most famous woman, in her position, among the social celebrities of the reign of George III." "Maid-of-all-work, model, mistress, ambassadress, pauper," wherever and whatever she was, artists vied with each other in sketching the woman described as having "a perfect form, face as fresh and divinely fair as Hebe's, eyes that could express the deepest passion and melt in the softest languor; a mouth like a rosebud, the clear white brow framed by a profusion of deep auburn hair." Amongst the relics are some locks of her hair with some writing, "Emma's hair, cut August, 1792, for her dear Sir William."

Having concluded our survey of the portraits, we turn our attention to the miniatures, relics and plate, which last may be dismissed in a single sentence; less artistic than that of the Stuart period, it is rather heavy and solid. There is, however, a large chronologically-arranged collection of watches, in silver, gold, pinchbeck and shagreen cases, from the sixteenth to the nineteenth centuries; consequently, of all sizes and shapes, mostly in highly-embossed cases, nearly all the gold watches being set in pearls or diamonds.

The exquisite collection of miniatures consists of above five hundred, some of them being the most bewitching faces one could see, by Cosmay, Tincke, Guinaldi, Hone and others, but we can only cull a few of the more distinguished names.

There is, naturally, a good array of royal personages, but George IV seems to have been another Rameses II in his love of seeing reproductions of himself, besides all which there are paintings of his eye and of Mrs. Fitzherbert's. A series of portraits of Princess Charlotte from 1796 to 1817 is interesting; so is one of Queen Victoria as a simple girl of eleven. Of Napoleon there are three or four as General Bonaparte, in which we notice the "somewhat tired look" Talleyrand speaks of, also apparent in the large oil-painting. He is also here in his coronation robes, with the wreath of laurel, looking younger. These are by Isabey, the most cheerful countenance being that by Aubrey, in a case facing the portrait of Josephine. Of this pleasing and sensible lady there are two others, in one of which she wears a tiara and necklace of sapphires and pearls. When Napoleon divorced her and lost his luck, he got a haughty dame in Marie Louise, or so she appears in her portrait, in which she wears white satin and a diadem of pearls.

Poor Louis XVI! he seems to have had fewer brains even than our George III. Perhaps "there were not enough to go round the family," judging by the specimens here of the various members of it. And Marie Antoinette is here — not the grand woman facing a mob, but a pretty sort of a doll with an unmeaning face. She carries a large muff with a little posy of roses fixed to it. A handsome woman of quite another type was Catharine II of Russia, whose fine face is also among the Wedgewood medallions, as well as that of Alexander I. Robespierre's miniature has on the back, in C. J. Fox's hand, "*Un scélérat, un lâche, et un fou.*"

Here are the Gunnings, Mrs. Siddons, magnificent on ivory, Lady Sarah Bunbury, "the beautiful shepherdess of George the Third," and the handsome and clever Countess of Mornington, the mother of the Duke of Wellington. The two beautiful Duchesses of Devonshire are in the frame the Duke lends, which also includes the handsome queen of George the Second; the erratic Lady Mary Wortley Montague, as a shepherdess with crook, etc., and also in Turkish costume, which suits her better; a fine one of Chantrey, standing beside a finished bust; Samuel Wesley and his son John, the centenary of whose death has just been signalized by the erection of a statue by Adams Acton, which represents him preaching, and is placed before the entrance of his old chapel in the City Road.

There is a very fine miniature of the Duke of Wellington, painted by Isabey in Paris in 1814; the Ancaster box, in a frame, and the Holland family; while we have Robert Burns placed between two empresses and a princess!

In short, every one who was either noted or notorious in various walks of life is to be seen admirably depicted by the pencil of the miniature-painters of their day.

Among the pretty *bonbonnières* and patch-boxes is one containing a set of patches worn at the beginning of last century, varying in size from a six-pence to a mere dot.

Exceedingly interesting to many are the Napoleon relics, taken from his carriage at Waterloo and sold by the soldiers; viz, the silver-gilt toilet *nécessarie* with boxes for soap, etc., attested, at the wish of the purchaser, by the goldsmith who made it; carriage clock; two gold bees used to clasp Napoleon's cloak and his blotting-book. The cover of this book is of peacock-green velvet, ornamented at each corner by golden bees, while in the centre is the letter N surmounted by the imperial crown; all exquisitely embroidered in gold. There is also a glass, brought as a relic from the Emperor's tent at Waterloo, by a person who saw him drink out of it. The articles from the carriage were used by him in all his travels and campaigns from 1806 to Waterloo. Amongst the furniture there is the desk, plain and solid, at which Doctor Johnson wrote the "*Dictionary*;" the chair used by Lord Nelson on board the *Victory* — in the right arm a piece has been removed and stuffed for the stump to lean upon; and a barometer belonging to George III.

Wonderfully curious and interesting, is the large collection of historical fans, mounted and unmounted, being mementos of the various topics of the time that stirred the public mind. A few of the subjects may be given: Coronation banquet of George II, 1727; Sir R. Walpole's Excise Bill, 1733; Warren Hastings's Trial; Victories both on Sea and Land; an opera fan with view of the boxes and names of their owners; a dance fan with music of popular dances; a church fan, having hymns printed on it, and one for chapel, which one might call a distinction without a difference.

The cases of Crown Derby, Chelsea, and other beautiful china-ware must be passed, with the commoner kind having historical portraits or subjects painted on it — one we may describe, viz, a hand in white glaze, on the palm of which, in red glaze, is a heart; this is the "Heart in Hand," the sign of a "Fleet marriage."

The splendid and interesting specimens of Wedgewood pottery must be described more fully. One case in the central hall contains seven vases — some with cover and pedestal — illustrating classical subjects; two beautifully shaped jugs, and an opera-glass of this ware with highly polished steel fittings, in a case of the same china, which formerly belonged to Queen Charlotte. The centres of interest in the case are, however, two vases. One, the "Purnell-Tite" copy of the famous Portland or Barberini Vase; being No. 29 of the original fifty, the models for which occupied three years in making; the other being one of the original trial copies, made by Wedgewood, from which the famous fifty were produced. They are made in bluish-black jasper and reliefs in white.

Of the fifty portraits made by Wedgewood from designs by Flaxman and other sculptors, we can only say that, as may be supposed, they deserve the very highest praise, every detail is so exquisitely defined, as to bring out the characteristics of the persons represented, viz, sovereigns and people of all ranks and nationalities, renowned in arts, science, etc. Doctor Propert lends them, but they have been badly arranged on the screen. He also lends four frames, each containing nine medallions of equal merit.

There is an immense collection of letters and autographs. Those from royal personages are of little interest save for the names. In one from the Duke of Clarence, afterwards William IV, he says: "As for this rascal Bonaparte, I wish he was at the bottom of the sea." As in the Stuart exhibition, the compilers of this catalogue have been careful to use brackets when the Pretender is mentioned "[*i. e.*, King Jas. III]"; — rather amusing in the circumstances. The letters from and to statesmen in the earlier portion of our period were generally concerning such risky subjects that they spoke of each other by number. The Princess of Wales — Queen Caroline — appears to have been a trouble to both friends and foes. One writer laments that while she was staying at his house it was fine weather, while it had been wretched before and after. In this connection, Lord Nelson writes: "The world say there is faults on both sides — like enough. Thank God! I was not born in high life!" That this latter qualification was not an absolute necessity for "the faults," his own life is evidence. Nearly the last letter Nelson wrote, and with the left hand, is to Lady Hamilton, from the *Victory*, September 20, 1805.

There are numerous autograph MSS. of men of letters, and, as these writers were always more or less in want of money, a good many of their letters refer to loans, acceptances and accounts.

In Charles Lamb's distinct hand is a letter to Coleridge, telling him that, in a fit of insanity, "my poor dear, dearest sister has been the death of her mother." Three hundred and fifty autographs, with tickets of admission to various public functions, and handbills announcing cock-fights — in 1818, even — give us a fair specimen of the state of education, manners and morals of the eighteenth century.

COLOMBIAN PUEBLOS. — Two Indian pueblos have recently been discovered in the valley of the La Vieja River, Colombia, in which a large number of prehistoric objects of gold and pottery was unearthed. There were gold ornaments in the shape of butterflies, birds, lizards, toads, fishes, shells, etc., and pottery of various sizes, shapes and uses. Some of the gold idols had wings, and were suspiciously like the angels of Catholic representation, seeming to bespeak a late Spanish influence. There was also a cane of solid gold with a group of figures artistically represented on the handle. — *New York Times.*

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PARIS

SOME NOTES UPON MM. CHAPLIN, MEISSONIER, MILLET, DELAPLANCHE AND LAISNÉ.

THE winter of 1890–1891 has been cruel to the arts, and death has reaped an ample harvest in their field. Literature has lost Octave Feuillet; the theatre Mesdames Samary of the Comédie Française and Rosine Bloch of the Opéra; music, Léo Delibes; painting, Chaplin and Meissonier; sculpture, Aimé Millet and Delaplanche; and architecture, Laisné, without counting the more modest names which have disappeared without leaving such immense gaps in the great family of French artists, and all this in two months, December and January. The first of these deaths can hardly be spoken of in a special journal; but painting and sculpture belong to us somewhat, and we can salute for a last time these collaborators in the art of decorating the house and palace, may we not? All have been taken in the fulness of their activity. Our last great Exhibition, our latest *Salon* showed them collected together for the greater glorification of art.

The painter Chaplin was born in 1825. Pupil of Drolling (1786–1851), he made his début at the *Salon* of 1845 with a large portrait of a lady, then, before taking up *genre* painting, in which he was going to make a name by inspiring it with the grace of a Boucher and a Watteau, he began by showing studies made in Auvergne. He sent to the *Salons* of 1848, 1849, 1850 and 1851, vigorous scenes of peasant life and at the same time he exhibited his strength as an etcher. The publication bureau of the Louvre issues a remarkable etching of his after Watteau's "Embarkation of Cythera." But he soon abandoned rustic scenes, and consecrated himself to a more gracious and more roguish style, and in a short time he became the painter of feminine elegancies most in vogue. Like Watteau, Boucher, Fragonard and Greuze, he did not draw back before any lightsome subjects; but transparent gauze sometimes insufficiently concealed the charms of his nude models. He often left to be guessed the titles of some of his pictures — some gallant allegory like his "Premieres Roses" of 1857, and "L'Oiseau envolé" of 1863. The *Salon* jury for 1859, seized with a spasmodic shamefacedness, felt impelled to reject an "Aurora," which was scantily clad, certainly, but which hardly deserved so severe a verdict. In 1860, Chaplin was entrusted with the execution of several important paintings for the Tuileries, in the apartment of the empress. He painted the ceiling and the spaces above the doors in the Salon des Fleurs. In the Palace of the Elysée, between 1860 and 1863, he likewise adorned the Salon of the Hémicycle and the empress's bathroom with decorative paintings. The Luxembourg still contained last year the "Bulles de Savon," [1864.] It has been replaced by the charming portrait of a woman and the head of a young girl, with smiling face turned over her shoulder, with uncovered bosom, a subject which M. Chaplin frequently repeated at later *Salons*. Some persons criticise the want of correctness in the drawing of this artist and the too great idealization which the interpretation of his figures require. Without pushing as far as this severities, which the works of even Boucher himself merited, we may render justice to this delicate artist, whose brilliant coloring knew how to bring back in the midst of our eminently realistic and rational time a little of the grace and poetic elegance of the eighteenth century.

Far greater was the place occupied by Meissonier in the ranks of contemporary artists. His fame was world-wide and everybody contended for his work. And it is curious to remark in this century, when taste prefers modern subjects, the general admiration accorded to a painter who clothed his figures with the *pourpoint*, the *haute-de-chausses* and the *défroque* of former times. The fact is that Meissonier was a conscientious artist, equal and methodical in his work, so that his personages, in spite of their belonging to a by-gone time, lived in their anatomy and expression. The fact is everything holds together in one of this artist's works, who conceals, under a precision which a superficial examination shows to be a little cold, real feeling, derived from his inexorable conscientiousness. Born in 1811, he made his advent at the time when romanticism was rampant which did not agree with his well-balanced mind. In literature, he preferred Ponsard and Augier, and this comment, made by Théophile Gautier, is not without interest in showing the character of the man as compared with the artist. M. Charles Yriarte cites a curious example of the conscientiousness which Meissonier applied to his paintings, "For his famous '1814,' — where Napoleon is shown at the head of his staff in full retreat over a snow-covered road — he had the road built for him on an inclined plane, waiting for a snow-storm, so as to better paint his conception from nature; and then asked Colonel Clapier for a battery of artillery of the guard, so that the snow might be trampled and impressed with the wheel ruts of the caissons." This may be a legend, but Meissonier deserves that it should be attributed to him.

The son of a Lyonese dealer in colonial goods, Meissonier had to struggle against the wishes of his parents, and his first steps were difficult ones. He made his début at the *Salon* of 1834 with a painting styled "Visit to the Burgomaster," where three Dutch burghers are seated beside a table upon which are glasses and gray Flemish jugs. Next he exhibited, in 1835, his "Game of Chess"; in 1836, the "Little *Magian*," then in succession "The Reader," and "Halberdier," [1840]; another "Game of Chess," in 1841; "The Painter in his Studio," "The Guard-room," "The Reader," "The Smoker," "The Amateur," "The Engraver," "The Incroyable," etc. In 1853, "The Shadow of the Thickets"; in 1855, "The Farewell Kiss" are amongst those rare paintings of Meissonier's, where the female figure is introduced. There can also be cited as exception a portrait of Madame Thénard. It would be impossible and quite useless to enumerate all his works which have become popularized by engraving and photography. Who does not know his "Reading at Diderot's," "The Amateur of Paintings," "The Portrait of the Sergeant," the painting of "The Ensign," "The Emperor at Solferino," now in the Museum of the Luxembourg, "The Quarrel," etc. Of these numerous works, Meissonier, it appears, especially preferred "The Quarrel," "1807," "Waiting," and "The Etcher." All these four paintings, the last two of which belonged to him, were left to the State. As to "The Quarrel," which has been made so well known through engravings of it, it was bought by Napoleon III in 1855, and offered to Prince Albert: Queen Victoria owns it at present. Meissonier sold his pictures at enormous prices, and it was by the hundred thousand francs that people were forced to buy them. He had obtained all the recompenses and all the achievable distinctions, including a great number of foreign decorations. He was made Grand Cross of the Legion of Honor at the time of the Universal Exposition of 1889. His final obsequies were celebrated on February 4, at the Madeleine, midst a general emotion.

The sculptor Aimé Millet, who died last January, was born in 1817. His father, Frederic Millet, was a painter of miniatures much appreciated. His son Aimé was a pupil of David d'Angers and Viollet-le-Duc. At the age of nineteen he made his début with a "Bacchanal," which had a great success. Then, later, came the statue of "Ariadne," which is to-day in the Luxembourg. This brought him a First Medal, in 1857. The Luxembourg also has a "Cassandra putting herself under the protection of Pallas," which was to be noted at the *Salon* of 1877. Among the works of this artist can be mentioned a "Mercury," in the court of the Louvre, the statues of Louvois, Georges Sand, Denis Papin, and a "Phidias," several busts, amongst others those of Marshal Magnan, Madame Pauline Viardot, and the daughters of Théophile Gautier. We owe to him also the figure of "Youth Stripping the Petals from Roses," the tomb of the poet Murger, the monument of Baudin in the Cemetery of Montmartre, the statues of "Finance," "Commerce," and "Prudence," which decorate the façade of the Comptoir d'Escompte at Paris, that of "Civil Justice" in the Mairie of the First Arrondissement, and finally the "Vercingetorix," in beaten copper on the plateau of Alise in Burgundy; also the colossal "Apollo," which crowns the pediment of the Opéra. This last work, according to the opinion of the architect, M. Garnier, is the work of an artist having true decorative intuition and feeling for outline. To Millet belongs the entire honor of the composition of this figure of Apollo who raises his lyre above his head "like a holy ghost," as said the sculptor himself, who spent eighteen months in the execution of this task.

Delaplanche who died at the age of 54 years, in the full possession of his talent, was born at Paris in 1836. He was the pupil of Deligand. Like Millet, he leaves interesting works, if they are not so numerous. Second Prize of Rome in 1858, he obtained the first prize in 1864. Of his works, there is at the Luxembourg a "St. Marie" [1878], an "Eve, after the Fall" [1870], a fine figure, full of sentiment and feeling, and another statue, a little in the same spirit, which dates from 1884. There can also be mentioned "A Mother's Teaching," which he exhibited at the *Salon* of 1875, and which to-day decorates the Square of St. Clotilde, and "France Distributing Palm Branches," which crowned the central dome of the Universal Exhibition building of 1889.

It only remains for us to say a few words touching M. Laisné, an architect whose reputation has probably not passed beyond a certain environment; who, nevertheless, left in the memories of his confrères the recollection of a conscientious artist and a workman deserving success. Smitten with his art, he was not especially devoted to the School, but admired talent wherever he found it. His own æsthetic point of view was a broad one; he knew how to appreciate the new progress, and benefit by it in the realization of the programmes which were intrusted to him. He was born January 3, 1819, his father being a simple mason. We find in *L'Architecture* some interesting details as to the life of this valiant artist, who by the merit of his work at length achieved a place among our most esteemed masters. At sixteen years of age he entered the *atelier* of Jean Marie Huvé, the architect of the Château de St. Ouen, the Salle Ventadour and the Church of the Madeleine. In the preceding year M. Guizot, Minister of Public Instruction, associating himself with the national movement which characterized the year 1830, appointed the Committee of Arts and Monuments, and set about preparing an inventory of the monumental riches of France. This committee gave place, in 1837, to a commission, which was reorganized in 1839, 1842, 1852, 1860, and 1871 respectively. Of this commission, known as

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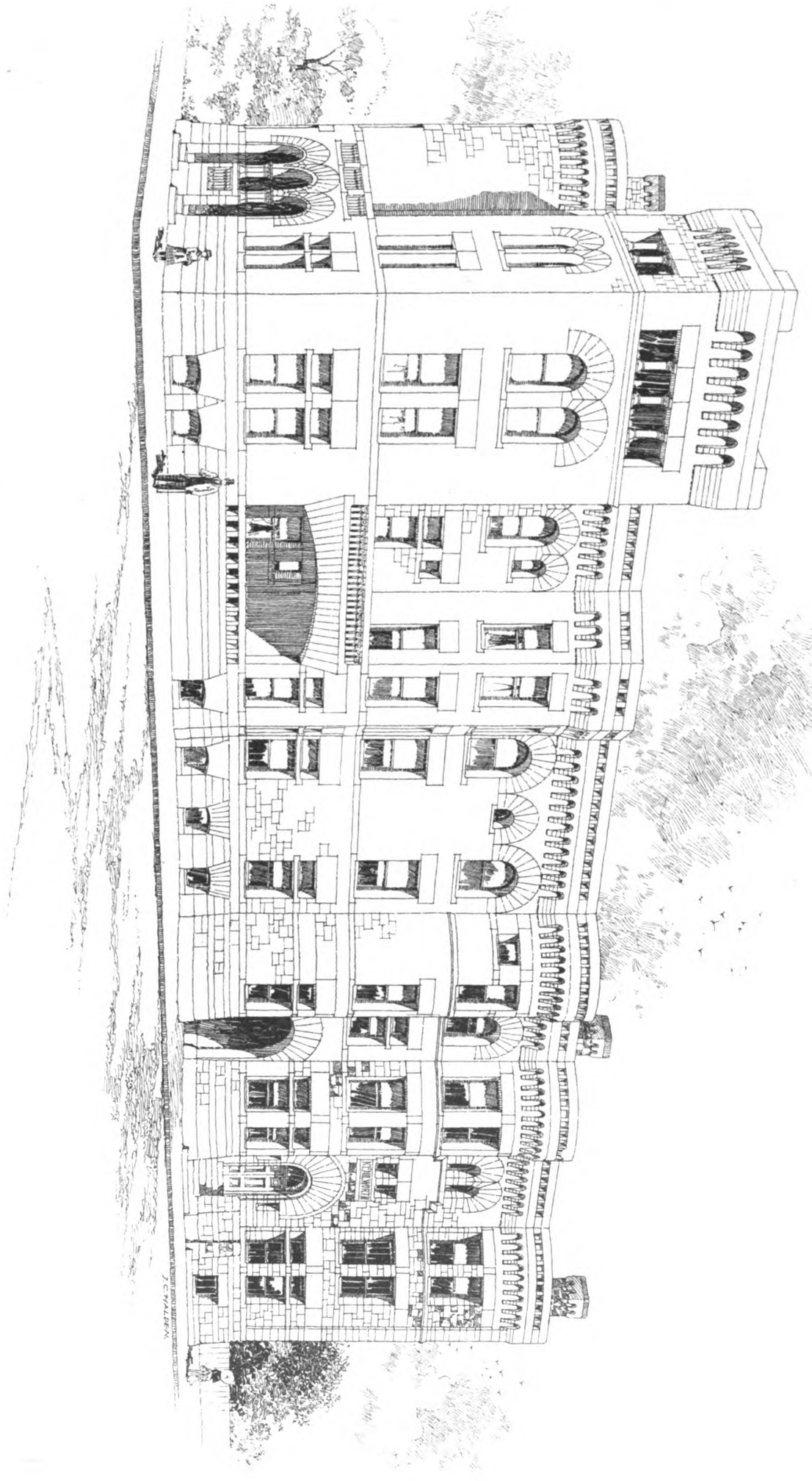

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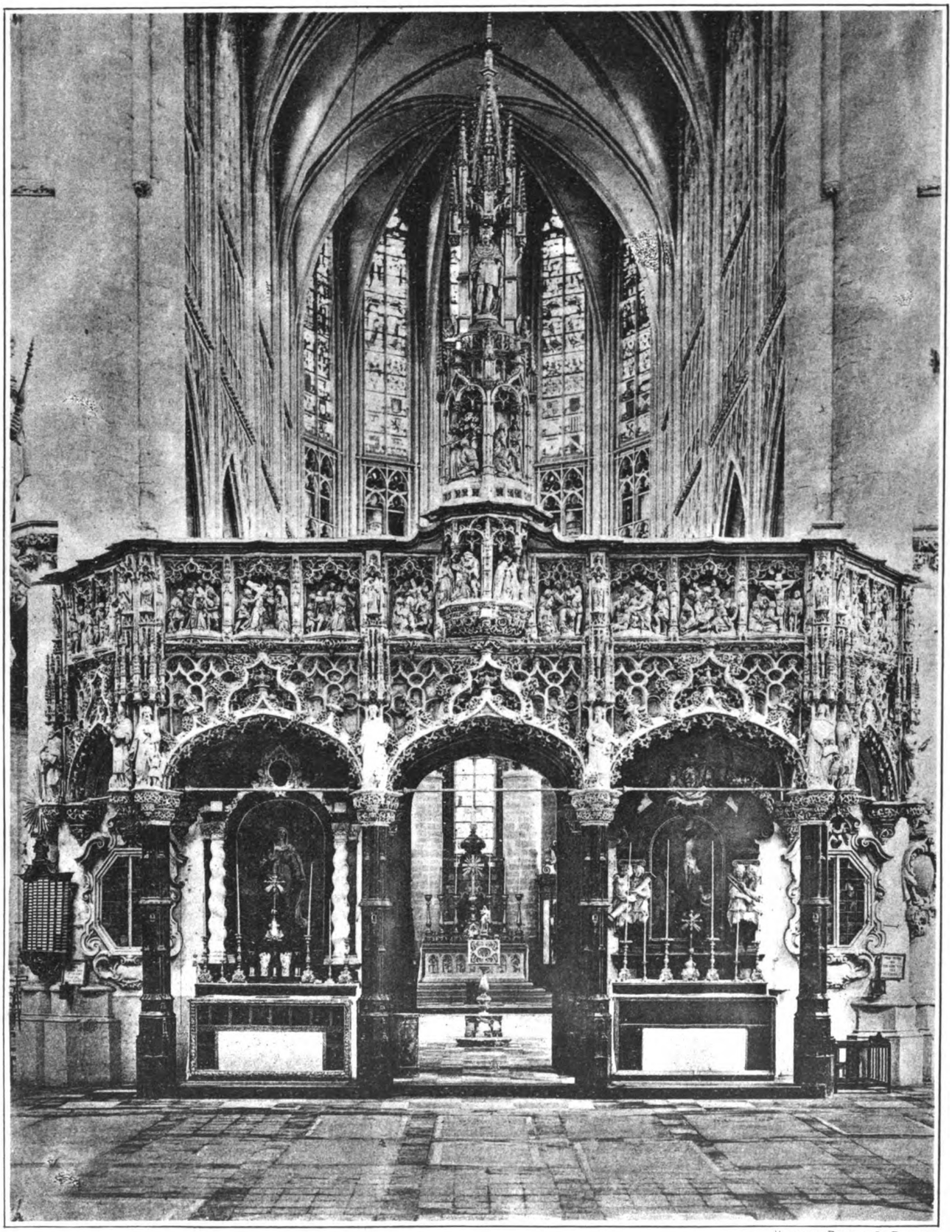

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ROOD-LOFT IN THE CHURCH OF ST. GOMMARIUS, SIERRE, BELGIUM

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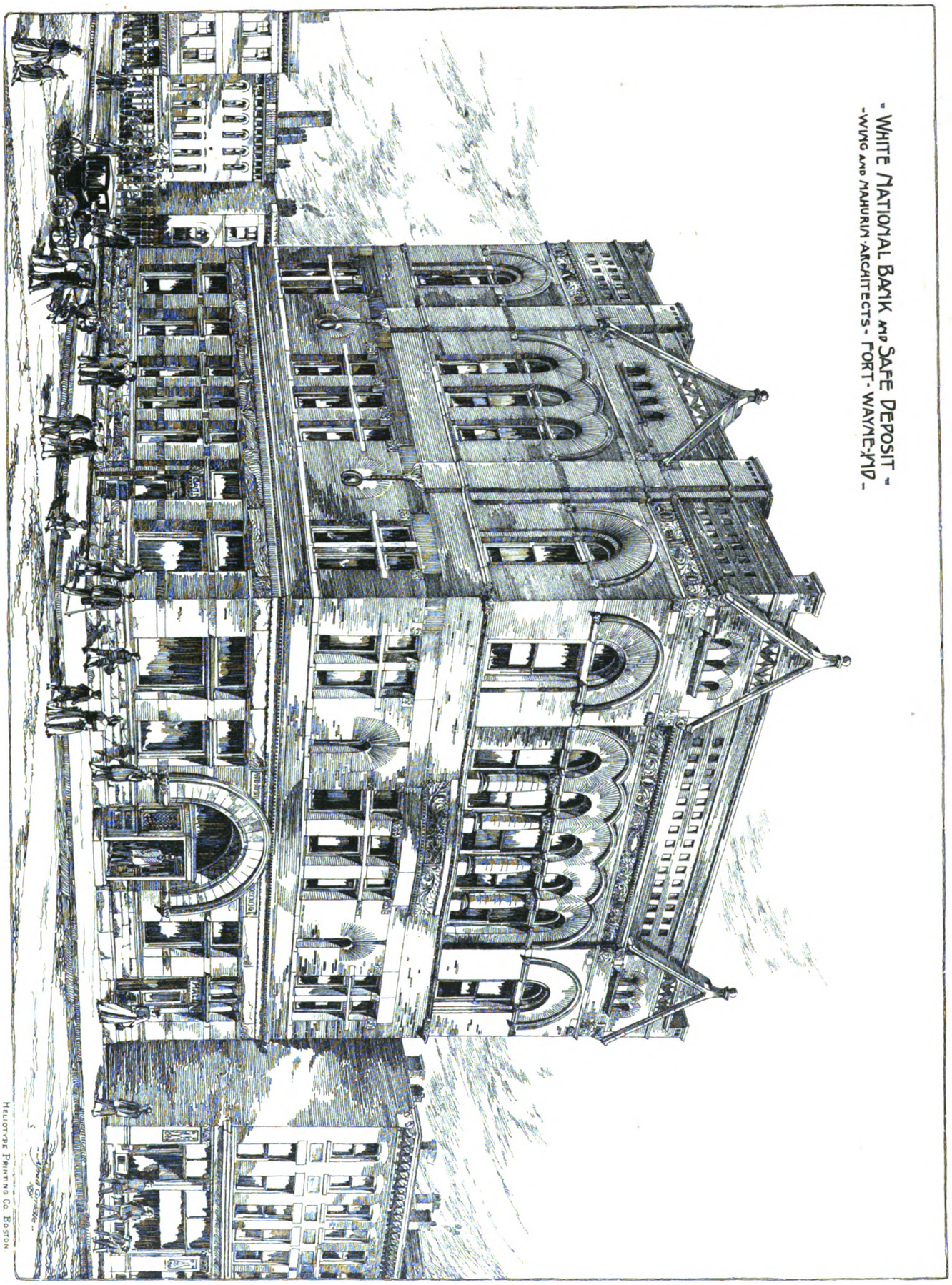

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FVRNITVRE ON CLASSIC LINES

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DETAIL OF THE ROOD-LOFT, ST. ETIENNE DU MONT, PARIS.

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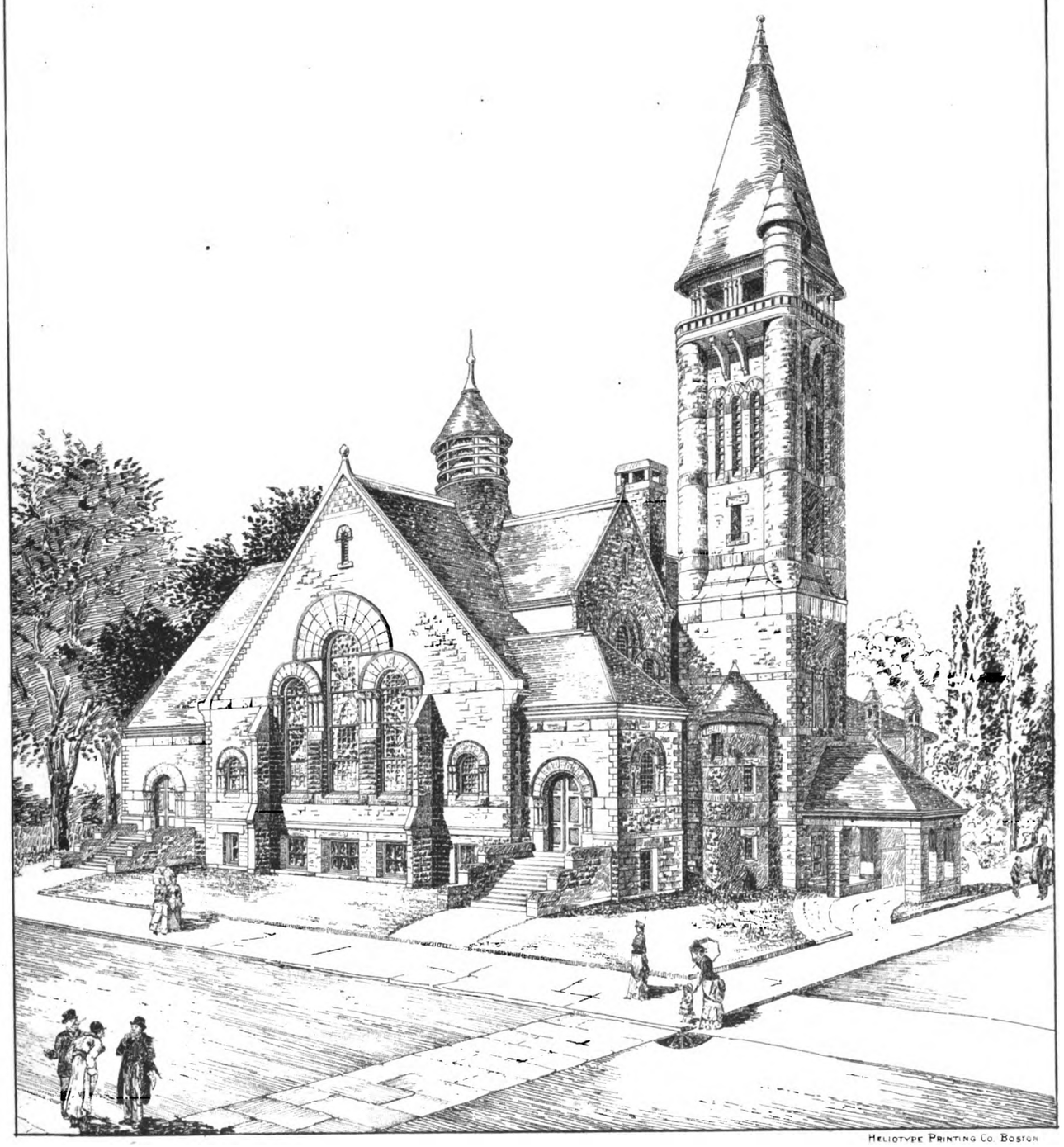
DESIGN FOR
SECOND BAPTIST CHURCH,
Danbury, Conn.

WARREN R. BRIGGS,
ARCHITECT,
Bridgeport, Conn.



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the Commission des Monuments Historiques, M. Laisné was a member from 1871 onwards. He was charged by Lenormand with working up the restoration of the Château de Meillant, built by C. de Chaumont in the sixteenth century and as a consequence he became the pupil of MM. Huvé and Lenormand. After having obtained the First Second Grand Prize of Rome, in 1844, he competed unsuccessfully in the following year, and then set out to visit Italy at his own expense. On his return, M. Huvé set him to work with himself on completing the Church of the Madeleine, and especially intrusted him with the studies for the furniture — the high-altar, the stalls, the confessionals and the organs. He next worked with M. Questel on the Church of St. Paul at Nîmes and on a fountain for that city, one figure of which was sculptured by Pradier. Together with M. Questel he prepared the restoration of the Pont du Gard, and collaborated on the decorations executed at Versailles, prepared for the grand fêtes given in honor of Queen Victoria, in 1855. It is about this time that he undertook the direction of the *atelier* Huvé-Lenormand, and replaced Parmentier in the restoration of the Hôtel Carnavalet, of which he remained in charge until 1870. In 1852, he was named diocesan architect to the Church of Auch, and in 1864 professor in charge of one of the free *ateliers* which had just been opened in connection with the École des Beaux-Arts, a position which he held until 1878. In 1868, he was named consulting architect to the Bank of France. Finally he was put in charge of the restorations of Nôtre Dame at Dijon, the Cathedral of Gap and the Cathedral of Sens. The last works executed by M. Laisné are the École Supérieure de Pharmacie and the Lycée Jeanson de Sailly at Paris. He succeeded M. Daumet as architect of the Church of the Sacred Heart at Montmarte, begun by M. Abadie. M. BRINCOURT.

GENOA AND ITS DOORWAYS. — PISA. — LEGHORN.

I IMAGINE the experiences and impressions of the first few days after landing in Europe are much the same with all architectural students, productive, that is, of what Dickens terms "a bewildering phantasmagoria with all the inconsistency of a dream and all the pain and all the pleasure of an extravagant reality." This sensation may be much enjoyed by some — there is no accounting for tastes. I shall never forget the sensation, when, at last, landed in Genoa, and safely housed with all my worldly possessions in a room of the hotel (the price of which I forgot all about agreeing upon, with the result explained later) and left alone in the bright and dazzling light of a single candle, all my experiences began to dance before memory's review, now recalling the woes of seasickness, the happiness at first sight of land, the landing at Southampton, the trouble at the customs office, the transportation by the little steamer to Havre, the wrangle with the cabmen there, causing total dispersal of the already partly lost senses, the trip to Paris, the pretty and picturesque little French villages as they ran by, the arrival at Paris, the terrors of a few nights in a hotel there, the making off for Genoa, again the encountering of custom officials at Modane, who thought the camera an infernal machine — and not a word of Italian at command to explain the difference — and at last the arrival at Genoa — the first stopping-point on the programme — which was directly inaugurated by a dispute with another cabman.

Genoa is a city of palaces and indeed rightfully may claim its title, "Genova la Superba." How happy is its situation on the sweep of the Ligurian sea, on the slope of a hill, its high buildings piling up one above another, the color of the old time-worn roofs and walls beautifully contrasting with the orange gardens (in which to be sure there were but few oranges just then). Perhaps, no city can impress one as more typically Italian. Narrow streets climb up the hill, enclosed by high buildings with far-projecting shadowy cornices, fairly roofing them over, exposing to view a mere slit of sky, and here and there only admitting the sun to sparkle on the nearly always yellow-painted stuccoed walls, balconies, projections, open loggias of the old palaces; here a venerable shrine, a little dark-eyed Italian girl, making the sign of the cross as she reverently passes by, and there steep, narrow steps winding up to the street above, merry children ever running up and down, stopping in their play only long enough to smile at the stranger who has ventured the climb.

How happily the student here wanders, in continual surprise, gazing, smiling, sketching, dreaming himself in Paradise and at every step reminded of the lines of Byron,

"— Fair Italy!
Thou art the garden of the world, the home
Of all art yields and Nature can decree."

But there is no light without its shadow, and even here the pleasant sentiments of the day quickly give place to others, generally towards evening when hunger drives one into the restaurant.

I imagine, almost every student has sung his "tale of woe" about the famous maccaroni and cheese and the time he had when for the first time confronted with a dish. Why should guide-books tell all about gratuities and where ice cream is to be had in December and give not one word of advice as to maccaroni? A thorough and complete treatise on this long subject would certainly be much appreciated by all who travel in this otherwise so delightful country.

While most Italian cities claim special architectural merit in their cathedrals and churches, Genoa claims it for its palaces. In its most glorious epoch it presents the names of Galleazzo Alessi (1500–72) and Rocco Lurago as its architects, the former a pupil and friend of Michael Angelo, and builder of any number of palaces. Whatever the merit of their exteriors may be, in the monumental grandeur displayed in their planning and the adaptation of the buildings to the situation, these architects certainly have left to us masterpieces.

The elegant perspective enjoyed in most of the *cortiles* and the vista had from the lower vestibule up the main staircase, through the arcade into the *cortile* and the beautiful terraced gardens beyond hiding fountains in their shrubbery, is certainly most impressive and calls for a note, with a dozen adjectives and emphasizing lines below, in the memorandum-book of the architectural student.

Painted exteriors, like so many here, remind one more of painted stage-settings than of massive palaces, and in sacrificing architectural to painted decoration the exteriors of these palaces have suffered much in effect. There are several, however, where the intended painting was not carried out, such as the Palazzo Durazzo, and here the effect is decidedly more satisfactory, though the building is as plain and devoid of ornament as it is possible for any building to be.

One of the most interesting features of Genoa is its possession of a number of exquisitely designed Renaissance doorways, which in their refinement really cause the student to wonder how they found their way hither, as the architectural detail of the palaces in general is rarely anything but crude and unrefined. Nothing can contribute more largely towards the student's enjoying a day of hunting and cribbing than the stumbling upon some meritorious bit of detail which bids him stop and use his sketch-book. And as if this fact were known to Genoa and it were striving to please him especially, these doorways are scattered about in most delightful manner, presenting themselves where least sought for and often adorning a front which otherwise shows no other trace of architectural design. Special elaboration and concentration of design are displayed on these doorways, probably in view of the fact that the narrowness of the streets, lanes as they are often called, hardly permits a view of anything above the second story. Often they are designed with pilasters at each side supporting an entablature, all most delicately carved in marble; others have an arch in connection with pilasters and entablature, the spandrels being filled-in with medallions, and frequently they are merely a richly carved frame with sculptured lintels representing different scenes from the never-ceasing wars and triumphs of former days.

S. Lorenzo, the cathedral of Genoa, is a most peculiar jumble of Gothic, Renaissance and Romanesque work, erected, probably in 1100, on the site of an older church, some materials of which have been used in the present edifice and plainly show the different periods at which building was commenced, ceased and resumed, a process which but rarely is productive of a successful ensemble. Had Bramante's original design been completely carried out in the erection of St. Peter's, a building surpassing much of its kind might have been the result, but as now, what is it? At best, critics now only say if so had not been so and this had been done another way, it might have been successful.

Like many Italian churches the exterior of S. Lorenzo is striped in alternate courses of black and white marble. Its interior consists of nave and aisles, the former separated from the latter by the columns of the earlier church,— a barrel-vaulted ceiling and a dome constructed by Alessi in 1567. By far the most meritorious parts of this church are the two Romanesque portals gracing the sides, undoubtedly of a late period. They are elaborately ornamented, very rich in effect, in detail much more refined than is usual in this style, executed in marble in a manner which must elicit praise and recall the pride each workman must have displayed in the careful study and elaboration of his work. Even in these doorways, Corinthian capitals and ornamental lintels of the older building have been used, in a manner, however, not to impair the design. When looking at these specimens of their style, by no means even the best, yet so beautiful and effective, their ornamentation so strong in play of light and shade, bold and vigorous in versatility of motif, and showing the possibilities afforded, one cannot but repine that Romanesque, after so encouraging and enthusiastic a début as it enjoyed in our country, should be abandoned, fashion having decided to take another route for a couple of years or so.

The Capuchin church of Sta. Annunziata, built at the sole expense of the Lomellini family towards the end of the seventeenth century, possesses an interior which is considered amongst the best of its kind in Italy. It is in the form of a basilica and the columns between aisles and nave are of white marble, fluted and richly inlaid with different colored marbles; the entire interior, in fact, is lavishly ornamented with this material. Whatever the effect may have been before the late restorations and redecorations — and critics pronounce it to have been a most happy one — now in its flaring colors, it strikes one only as gaudy though most sumptuous.

Of modern architecture there is little for the student to linger over

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and after a visit to the Campo Santo, famous for its arrangement and beautiful monuments, the satchels may be packed, ready for departing in the morning. Little does the poor mortal dream that night of what shall encounter him in the morning — the bill.

The tips, expected by the waiter, porter, cook, chambermaid and boot-black as they stand in line all wishing you "*buon viaggio*," attended to, one does well to reach the station in time to have his circular-ticket stamped, find a place in a third-class coupé, and so off for Pisa at the enormous speed of Italian express trains — fifteen miles an hour, if there is no snow on the track. Third-class coaches in Italy are not very comfortable, but the architectural student, when enthusiastically admiring an old farm-house here, a pretty bit of scenery there, the quaint group of a little town, pinnacled with mediæval towers, perched upon the top of a steep hill, or an old monastery hidden behind and guarded by beautiful cypresses, all gliding by, has no time for the notice of such a little thing as a hard seat, and leaves attention to this matter until arrived at his destination, when stiffness and a broken-joint feeling faintly remind him of it.

What a contrast exists between Genoa and Pisa! The former ever bustling, running, full of life and go, the latter, dead, dull and gloomy as if still in mourning for its former glory of the gone days of the twelfth and thirteenth centuries, when it ranked as one of the greatest commercial and seafaring towns on the Mediterranean; fairly rivalling Venice and Genoa and embracing in its supremacy the Italian islands and the whole of the coast from La Spezia to Civita Vecchia. Protracted wars and internal dissension were the cause of its eventual and continual downfall, until now an unequalled monotony and death-like quiet reign in its streets. However, the Arno still flows through Pisa in its beautiful curve, and recollections of its glorious past still live in its wonderful group of buildings, the Cathedral, Baptistery, the famous Tower and the Campo Santo.

For a short time before having to surrender its lead in art to Florence, Pisa occupied a quite prominent position in the history of Italian art, its cathedral, though not the first building in its style, in its perfection formed the foundation for Italy's mediæval architecture and in Niccolo Pisano, Pisa boasts of giving birth to the precursor of Renaissance in sculpture, and the creator of many masterpieces of art.

Few buildings are better known than the group spoken of above. Fergusson speaks of the interior of the cathedral — which is in the form of a Latin cross, with dome at the intersection of nave and transept — as possessing a poetry of perspective, when looked at angle-wise across the intersection, which seldom is more satisfactory. Also of the appearance of the exterior with the series of open arcades, one above another, this treatment characterizing an entirely new invention of the age and copied in so many other Italian churches, he speaks in most flattering terms, while he severely critisizes the interior of the Baptistery with its dome, if dome it can be called, conical in form and thrust through an external hemispherical dome, in a manner more clumsy and unpleasing than any other example of its class. The exterior with its characteristic ornamentation and its beauty of detail, he considers far more successful than the interior.

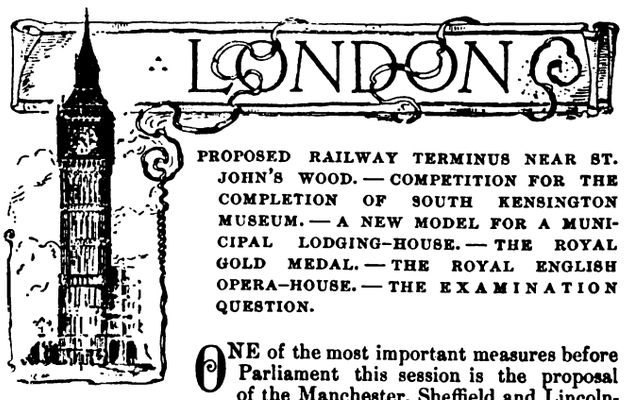
Though the exterior of the Campo Santo is entirely devoid of architectural design or merit, its interior with the beautifully traceried windows, opening onto the green quadrangle filled with earth from the Holy Land, as it is said, adorned with frescos of the Tuscan School, though in a bad state of preservation, and containing many monuments, ancient sarcophagi, and a fine marble vase with Bacchanalian representation, from which Niccolo Pisano borrowed some of the figures in his "Presentation in the Temple" on the pulpit of the Bapistery,[1] make it well worthy of belonging to this famous cluster of architectural monuments.

The Tower at any rate, serves as a world's curiosity — and recalls early school days when one was made to believe it one of the seven wonders — if not as model for perfection in design. The sensation when standing at its lower side and looking up, is decidedly queer.

To the remainder of Pisa's buildings little time need be devoted, they are as a rule little interesting in architectural design, but it would be unjust not to say one word of a stunning old Gothic edifice of the fifteenth century, in brick and terra cotta, on the Lung Arno, and also of the stunning coffee to be had in the café now established on the ground-floor.

En route to Rome, I stopped one day at Leghorn. Of all forsaken places, the most forsaken is this. Perhaps it impressed me thus on account of the cold, dreary and unpleasant weather I met there; but had it not been for the military band which played in the afternoon on the Piazza d'Armi and a visit to the old synagogue dating from 1581 and recalling that Leghorn to which the oppressed and persecuted Jews of Spain were invited by the Medici, who made this a refuge for the oppressed of all denominations, a fact to which undoubtedly it owes its present prominence in the commercial world, I should not have known how to pass the day. And to make the gloom of the day complete, on the way to the station late in the evening, in one of the dark streets, I was met by a funeral procession of the Misericordia, in their ghastly masks, with torches and implements necessary to provide for the last resting-place of some one's worldly remains carried on their shoulders. I never saw a ghastlier sight. No wonder that during that night in the cars I had a most horrible nightmare, at the climax of which I fell off the seat on which I was trying to enjoy a visit to dreamland, while the faithful engineer in his locomotive was hurriedly guiding me to Rome. A. Kahn.

[1] The Renaissance in sculpture is traced back to Niccolo Pisano's borrowing of figures from this antique vase, a careful study of which, it is said induced him to exchange the prevailing style for the ancient or rather to look at the antique again for model.



PROPOSED RAILWAY TERMINUS NEAR ST. JOHN'S WOOD. — COMPETITION FOR THE COMPLETION OF SOUTH KENSINGTON MUSEUM. — A NEW MODEL FOR A MUNICIPAL LODGING-HOUSE. — THE ROYAL GOLD MEDAL. — THE ROYAL ENGLISH OPERA-HOUSE. — THE EXAMINATION QUESTION.

ONE of the most important measures before Parliament this session is the proposal of the Manchester, Sheffield and Lincolnshire Railway to extend their trunk line to London. The proposition is due mainly to the energies of the irrepressible Sir Edward Watkin and the bill bears many marks of his supreme audacity. In the first place the entrance into the metropolis is not to be made within that belt of poor property grouped around St. Pancras, where all the other great Northern Trunk Lines at present have their termini, but the suburb of St. John's Wood is assailed. This particular suburb is peculiar from the fact that the ground landlords, who own the greater part of it, were most particular that nothing should be permitted which could impede a thorough circulation of air throughout the entire district, and consequently stipulated when they leased the land that no terraces or semi-detached houses should be built, but that each house should stand by itself in its own grounds. Therefore, it will readily be seen that the district became a very favorite residential suburb for the middle and upper classes, and is at the present time much affected by artists, authors and *hoc genus omne*, by whom the vision of a main trunk line with all its noise and dirt and other disagreeable accessories is more than can be borne. Consequently the district is up in arms against the bill. And yet, still more audacious, Sir Edward proposes to carry his line across an angle of "Lord's," England's national cricket-ground, which is also raising opposition on all sides. But Sir Edward cares for none of these things. He foresees that if the bill is thrown out this year, steady persistence and importunity will weary much of the opposition, and that if perchance he does get his way, he is shrewd enough to see what a great difference there is between a slice of garden land and closely-packed tenements when the question of compulsory compensation is reached. And as for the sentiment and preservation of quietude and simplicity, that to a man of Sir Edward's temperament is a *quantité négligeable*. Among the other bills the Central London Railway Bill comes up again, and is strengthened since its last appearance by the apparent success of the City and Southwark Electric Subway, the Central London Scheme being proposed to be dealt with in the same manner. Another proposition is to take a subway across from Paddington to South Kensington, but in connection with this the promoters have asked for permission to erect a station in Kensington Gardens, which may lead to the wrecking of the bill. A fourth railway bill had for its object the cheapening of railway communication with the outlying suburbs to render them available for housing the working-classes, and enacted that before 8 A. M. every line should run a certain number of trains carrying workmen at a nominal rate, say four miles a penny. The proposal was, however, full of difficulties, and was thrown out on the second reading.

Her Majesty's Government have initiated one of the most important competitions of modern times. The completion of South Kensington Museum is the subject and a sum of about £400,000 is set apart for the work. There have been eight architects nominated for the competition, four by the First Commissioner of Works: Messrs. T. E. Collcutt, M. Macartney, Aston Webb and Sir Thomas Deane & Son, and four by the Royal Institute of British Architects: Messrs. I. O. Jackson, R. Norman Shaw, Wm. Emerson and John Belcher. Subsequently Mr. Norman Shaw declined the honor, and Mr. G. F. Bodley was nominated in his stead. With such an excellent company of competitors we can hardly fail to get a building worthy of the nineteenth century.

The new Admiralty Offices are now well in hand, the foundations for the first portion, which contains most of the principal rooms, are nearly finished and tenders are about to be obtained for the superstructure which Messrs. Leeming & Leeming estimate will cost about £213,000. Of course nothing like the original design with which Messrs. Leeming obtained the work is to be carried out, as I mentioned in a letter some months ago, but the architects have succeeded in producing a conception which, though devoid of anything approaching originality, yet has a certain air of quiet dignity which is not unsuited to a government office.

The County Council's Competition for a Municipal Lodging-house

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has been awarded to Messrs. Gibson & Russell for a plan of a very novel character, one which bids fair to be a success. Their building consists of two great halls about 70 feet x 37 feet x 32 feet, around which 8 feet apart are ranged iron galleries containing 160 cubicles. Each cubicle is absolutely separate and has its own window, door and bed. There is an inlet from the external air into each cubicle and the whole vitiated air is constantly extracted through a central lantern light which runs the whole length of the galleries at the roof level. On the ground-floor there is a large day-room and a dining-room and kitchen, beyond the usual offices. Altogether the plan is a most satisfactory one and although the whole notion of a Municipal Lodging-house is a venture and a novelty in the metropolis, yet it is to be hoped that the experiment will prove successful and that legislation will follow which will order the closing and removal of the many pestilential dens which now are, as the *Builder* justly says, "so many plague spots in the metropolis."

The Royal Gold Medal, this year, is to be given to Sir Arthur Blomfield, A. R. A., Past Vice-president of the Institute. The nomination of Sir Arthur for this honor, has been well received in the profession for he is justly held in high esteem, both on acoount of the great amount of careful and refined work he has executed and of his high personal character. Sir Arthur, it will be remembered, was the architect to the new work at Eton College, Zion College on the Thames Embankment, the Bancroft Schools, the Royal College of Music, the Church House, the great Church of St. Mary's, Portsea, the restoration of St. Saviour's, Southwark, and numerous other ecclesiastical buildings. He is the son of Bishop Blomfield, who occupied for some years the see of London, and was knighted by the Queen in commemoration of the Jubilee of 1887.

Before, however, the medal was offered to Sir Arthur Blomfield, Mr. R. Norman Shaw was approached to see whether he would accept the Gold Medal if it were offered him. Unfortunately, however, Mr. Norman Shaw seems to have felt the necessity of consistency in his policy of non-recognition of the Institute and declined to receive the medal.

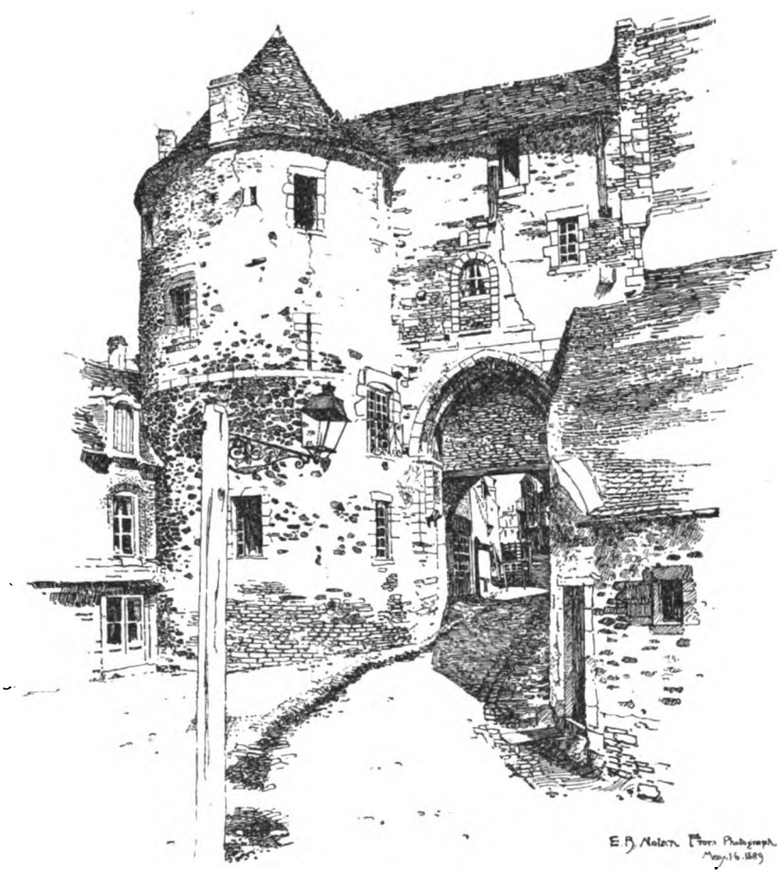
Since my last letter Mr. D'Oyley Carte's new Royal English Opera-house has been opened. This new theatre is unique in its character and most complete in its construction. It is situated on a plot of land fronting on the circus formed by the intersection of the two new streets "Shaftesbury Avenue" and "Charing Cross Road" cut through the slums of Soho by the late Metropolitan Board of Works. Besides these three frontages to streets, the fourth side also faces on a street, so the theatre is unique in London, in respect of its absolute isolation from any adjoining buildings. The site is wedge-shaped with its narrow end facing Cambridge Circus and in consequence of this peculiar shape of the site and the necessity of having the stage at its wider end, the auditorium diminishes in width as it recedes from the stage.

The system of tiers constructed on the cantilever principle has been adopted, so that no columns obstruct the view of the stage, and it is said that an unobstructed view can be obtained from every seat in the house.

Mechanical ventilation has been resorted to, and fresh air is forced into the house by Tobin tubes and warmed or cooled on its way as is found necessary. Openings are made in the ceilings, to which exhaust-shafts are connected, worked by exhaust-fans.

Marble has been used very extensively in the internal decorations, the jambs and soffits of the proscenium-arch being lined entirely with marble and Mexican onyx.

Mr. D'Oyley Carte was his own architect and builder as regards the internal construction and arrangements of the building, although he was largely assisted in his work by Mr. G. H. Holloway, who really acted as the builder. The elevations were designed by Mr. T. E. Collcutt, in a style of architecture which is finding favor in England at the present time. The material is red brick and buff terra-cotta.



Gateway at Falaise, France.

Another little struggle has taken place over the great examination question. It originated over a protest against the Architect's Registration Bill which has duly appeared among the host of private measures which annually enjoy a brief existence before being slaughtered in the House of Commons. This protest was aimed against architectural examinations in general and the Registration Bill in particular, and was signed by twenty-four architects, members of the Institute, twenty-two architects not members of the Institute, and twenty-four painters and sculptors. The protestors are generally well-known and influential men. The document which appeared in the *Times* commenced with a statement that to attempt to make architecture a close profession (as the bill contemplates) would be fatal to its progress as an art; that examinations and diplomas will lead to a further division between it and its sister arts of painting and sculpture; that it is possible to examine a student in construction and sanitation, but not as to his artistic abilities and that, unless all who erect buildings are examined, no legislation can pretend to protect the public against bad construction, much less bad designs.

The letter introducing the protest contained the following paragraph which was evidently meant to hit the Institute itself: "It is, however, no secret that some of those who now join in opposing it (the Bill) are doing so in the hope of submitting another measure of their own." This sentence really contains the gist of the argument, for it was subsequently admitted that the protest was delivered not so particularly at the Bill, but against the Institute's policy of examination. This statement caused the Institute to defend itself, and its president, Mr. Waterhouse, wrote and explained that the Institute recognized that it is impossible to manufacture an artist by making a student pass an examination, and all it wishes to do by its system of examinations is to make sure that before a student is qualified to enter its ranks, he shall profess such a knowledge of architecture as the examiners for the time being may consider necessary.

Other letters followed in subsequent issues of the *Times* and the debate ultimately flickered out from want of fuel. Not much good has been done by it because the examination question has been talked to death; no new arguments can be adduced on either side. The official journal of the Architectural Association, in commenting upon the correspondence, makes some very sensible remarks upon it to the following effect:

"The utmost that can be said for the system is that it produces a general leavening upwards of the average intelligence of any body of men to which the system has been applied. Eminent doctors, lawyers and divines existed before the days of examinations, and continue to exist now examinations prevail. No man ever became great, or, on the other hand, ever proved a failure, because he passed an examination, and the only question that concerns architects is, whether they, and the world with them, will be any the better off if they are compelled to submit to a test. Rightly or wrongly, the majority of young men, intending to become architects, are disposed to welcome a test which indicates a definite line of study advisable for them to pursue. All parties seem to agree that it is possible to examine a man in the scientific and practical side of his craft. We would point out, with all due deference, that examinations affecting his artistic capacity are already in existence. By the time these lines appear in print, some at least of the gentlemen who signed the protest will be holding a great examination at Burlington House upon the mass of artistic matter submitted for exhibition. Should an architect be amongst them, we venture to hope that he will dare to use his power in rejecting much of that work which popular opinion already stamps with its approval. No travelling-studentship, no gold or silver medal, no premium offered by the Royal Academy, is ever awarded without severe examination. At the very threshold of the schools the

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great bogie confronts the aspirant and has to be propitiated; and we need not remind our readers that neither science nor practice is included within the Academy curriculum."

Among those who signed the protest, it is comical to note the names of some who themselves sit as examiners at the Institute, and who have many times pronounced the fate of unlucky wights brought up before them. While of those who have themselves submitted to the examination of their artistic ability by, and have been content to receive their reward through the means of competitions, we seem to be familiar with the names of Sir Arthur Blomfield, Mr. Brydon, Mr. John Douglas, Mr. Bodley, Mr. Champneys, Mr. Garner, and others; so that, rightly or wrongly, we find that without protest, or only with a very lame protest, examination already pervades artistic architecture from its cradle at the doors of the Royal Academy and the Institute, to its grave in some great competition.

A very generous offer has been made by a friend of J. Humphrey Ward, of £80,000 for the erection of a gallery of British art. The offer contained certain conditions which led to a brief correspondence with the Government with the ultimate result that the offer was accepted on the conditions: —

(1) A site to be given as the Government's contribution in Exhibition Road, South Kensington.

(2) Space, if possible, to be reserved for future extensions.

(3) No building to be permitted immediately adjoining.

(4) No control of any kind to be exercised by the Science and Art Department of South Kensington Museum.

The last clause is an odd one. It is evident that the giver of this noble gift is not more in sympathy with the hard and fast official rule of South Kensington than are architects and artists generally.

: CANADA :

FALL OF THE FLOORS OF THE YOUNG MEN'S CHRISTIAN ASSOCIATION BUILDING, MONTREAL. — THE COMPETITION FOR THE MONTREAL BOARD OF TRADE BUILDING. — FALL OF A WAREHOUSE IN TORONTO.

A GREAT deal of excitement has been caused among architects and builders and building owners generally by the collapse of the whole of the interior of the new Young Men's Christian Association Building in Montreal. The construction of this building was in an advanced state, everything being in readiness for the plastering and work was proceeding with about forty men in the place, when, on March 23d last, some of those standing on the upper floors noticed that the partitions crossing the floors were sinking. They made a bolt for the outside walls and secured safety for themselves by means of the fire-escape and shouted to the men on the floors below. Every man got out, and then with a tremendous crash the flooring of the whole building, from top to bottom, fell in. The cause of the accident is not yet decided upon: efforts are being made to get out the débris, when this question will be cleared up. Of course there are the usual theories, the simplest of which most men cling to, that is that one or more of the iron columns supporting the centre of the construction in the basement gave way. The blame is thrown by some on one man, by some on another — the architects, Messrs. Fuller & Wheeler, of Albany, N. Y., the contractors, Dickison & Allan, of Syracuse, N. Y., Mr. Lancaster, the clerk-of-works, and even the proprietors all being included by one or other of the theories. It is due to Messrs. Dickison & Allan, however, to state that they were not the original contractors. The tender of Messrs. Rafferty & MacAllister of Syracuse, at a figure $20,000 less than any other tender was originally accepted, they giving the required bonds, but they got into difficulties, dissolved partnership, and the partner who kept to the business found he was not in a position to proceed with the work. Messrs. Dickison & Allan, then took it up. There is a general opinion that the plans did not provide for sufficiently strong walls, but it is not the walls that have given way at all; they are apparently injured only to the extent of the wrenches caused by the fall of the girders built into them. No doubt the inquiry will clear up the whole matter, but in the meantime everybody concerned must remain in a very uncomfortable position. Whatever may ultimately be found to be the cause — and it is just as likely as not that the iron columns were not — it is singular how fond architects are of using these unstable "supports." The great difficulty of casting them of even thickness all through, one would have thought, ought long ago to have made them unfashionable and yet, every day, one sees them being incorporated into buildings of all classes. Speculating builders seem to have a particular affection for them and local building-inspectors have nothing to say against them. These men constantly make a four-inch iron column standing on the basement walls at the angle of the building responsible for the safety of the whole structure they are made to carry, two or three or four stories of brickwork. They are bought cheap, never tested, and exposed to all the changes of temperature the year round. In the case of this Young Men's Christian Association Building, as there was no loss of life, of course there is to be no inquest, so the Government has not the opportunity of stepping in and forcing an inquiry into the cause. One or more of the officers of the Association are interested in the building trade and supplied some of the material, so that what with architect, contractor and these officers of the Association, though the matter may be cleared up to the satisfaction of the public, it is doubtful whether the blame will ever be put upon the *real* offender.

One or two architects in Montreal have been getting up an agitation over the result of the competition for the Montreal Board of Trade Building, for the purpose of having the designs of all consenting competitors exhibited "along with the selected design as received by the building-committee." It will be remembered that the terms of the competition arranged that the sum of three hundred dollars should be paid to each of five or six American architects who were specially asked to compete and that another sum of three hundred dollars should be scrambled for by all the architects of Canada. However, the Associations of the Provinces of Quebec and Ontario refused to enter the competition which was arranged so manifestly for the benefit of Americans to the exclusion of Canadians, and notified the building-committee to this effect. The profession in Canada was not therefore surprised that the competition was decided in favor of an American architect, as all the best men in Canada abstained from competing. Some few Canadian architects appear to have thought there was a good chance for achieving notoriety and sent in plans, none of which, however, were accepted. For some reason or other, unknown to outsiders, the committee refused to allow the accepted design to be exhibited. They had by the terms of the competition, however, the right to exhibit them or not as they pleased, and the fact that the accepted design had been returned to the authors caused those competitors who happened to be members of the Board of Trade to get up a special meeting, the subject apparently being so interesting to members generally that it is said to have been the largest meeting of the Board ever held. The report of the meeting as given by a local paper is too long to reproduce, but it seems to have been excessively amusing and to have resulted in a "fizzle." The principal object of my allusions to it, is, that local papers reported that the agitators were the credited representatives of the profession in Montreal; this was *not* the case, and it is not fair to the members of the profession who stand by each other against the evils under which the profession groans or *has* groaned, that the actions of certain individuals should be reported as being in accordance with the wishes of the better men of the profession.

From Toronto, also, is reported the fall of a building, one used as a store-house for glass, recently erected, and now that the débris has been removed a very curious fact has come to light: the centre of the floor of each story was supported by a column, the one in the basement standing on a heavy cut stone. This stone gave way at its centre, the iron column standing on it dropped straight *through* it, some four or five feet (the soil below being soft) and remained in an upright position. It is believed that there was originally a stream of water passing across the site and it would appear that the stone bridged the exact bed of the stream, now filled-in with rubbish or sand, and being supported on its outer edges sunk by the pressure of the column upon its centre. Of course there should have been something more than the stone for the column to rest on. But an inquiry is now proceeding as to the cause of failure, so that further remarks would be premature.

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THE SETTLEMENT OF THE LABOR QUESTION. — GROWTH OF THE CITY. — THE ART BUILDING AND ITS ULTIMATE USES. — THE WOMEN'S BUILDING. — MODELS OF THE WORLD'S FAIR GROUNDS AND BUILDINGS. — THE WATER-COLOR EXHIBITION.

SINCE the letter of last month the labor questions there mentioned have for the most part been solved to the satisfaction of the employés. The carpenter bosses and their men have settled the question of wages (upon which both sides proclaimed themselves immovable) by "splitting the difference" and have moreover agreed to arbitrate all differences that might arise from now on to April 1893. As expected, the plasterers "went out" April 1st, but their demands were accepted with but little delay by most of the contractors, and now the lathers are taking their turn, demanding $3.50 per day, which will probably be accorded.

While, of course, some considerable inconvenience has been occasioned by these struggles, yet upon the whole, the building interests have been less affected than by similar disputes for several years past and the indications would all seem to point to a year of considerable activity in the building trades, the impression very generally being that building of all kinds will, from now until the opening of the World's Fair, gradually increase in volume, and then after 1893 be followed by comparative quiet for a year or two. Still the growth of the city, tremendous as it is, continues at so steady a rate that any one predicting a surplus of available house or business buildings seems always to find himself in the wrong. Even with the host of flats and dwelling-houses built during the last two years, and the many owners of such property, fearful that they should have no tenants, the real estate men now announce that the supply is less than the demand and as a result rents of nearly all classes have been, or are about to be, advanced. The annual report of the Commissioner of Public Works gives the figures in his department, which to a considerable extent form a good criterion of the growth and development of all parts of the city. According to the tables of this report, in extending the water system 133 miles of water-pipe were laid in 1890, making a total mileage of 1,205. Also nearly 72 miles of brick and pipe sewer were put down, this quantity being 130 per cent more than the year previous. In the matter of streets, 108 miles were improved, 100 being paved and 8 miles curbed and filled — all of which goes to show the continued and steady growth of the city in all directions; so that possibly after 1893 we shall see no decrease in the building trades.

The labor question in connection with the World's Fair remains in about the same condition as last noted and the retiring Directors have turned the whole question over to the recently elected board, which will have a chance to struggle anew with the problem.

As to the World's Fair buildings, some changes have been announced during the past month. A Music-Hall will be built at Jackson Park, or one of the contemplated buildings will be adapted to the purpose and in all probability the Art Building after all its wanderings will at length definitely be located in the Lake Front Park. To this end an ordinance has been presented and passed in the city Common Council, whereby the city permits the permanent Art Building to be erected in the Lake Front Park, but provides, that at the conclusion of the fair the control shall be vested in the City of Chicago, which upon certain conditions will turn it over to the Art Institute. These conditions are very decidedly for the general good of the public and the more important ones are: First, that the exhibition halls shall be open free upon all legal holidays and upon Tuesdays, Thursdays and Saturdays, also upon Sundays, from one to five o'clock. Second, that all professors and teachers shall at all times be admitted free to all the privileges of the Institute. Third, that the building may at any time be entirely surrendered to the city which may maintain it by public taxation. It is announced that $200,000 have been subscribed by citizens towards the building, which together with $250,000 from the Art Institute and $400,000 from the World's Fair Board makes $550,000 in sight, with considerable more promised. The design outlined by Mr. Root is probably to be used, the estimated cost of that structure being about $600,000. It is earnestly to be hoped that the building when completed will be suitably arranged for the needs of an Art Institute, but the practicability of turning a large exhibition building of this character into an Institute with classrooms, studios, etc., would seem in the light of what we have in the present building, which was built for an Art Institute purely and simply, as a little questionable, since it seems to have been impossible to meet satisfactorily the requirements in an entirely new building.

The request for designs by women architects for the façade of the Women's Building, brought out quite a number of drawings, but the average merit was not high. None of the three selected for the prizes are by practitioners, but really by students; one of the best of them, the third prize, being by the secretary of Mrs. Palmer (the president of the Women's Board of Managers). This designer we are told never had any technical instruction, but "picked up" all the information and knowledge of the antique orders and the general principles of construction, besides the use of drawing instruments and all other wisdom necessary to design a large façade in the Italian Renaissance; and, moreover, all this was picked up at nights and odd times during the few weeks that the competition was open. Surely the female mind is incomprehensible! any of the male sex would have been overwhelmed in attempting to pick up at odd times but a very small fraction of this wisdom, even if not overcome by the purely mechanical part of making a large drawing.

The first prize was awarded to Miss Hayden, a former pupil of the Institute of Technology at Boston, who graduated with the class of 1890. She has now come on to Chicago and her plans are being modified and worked up in conjunction with the Board of Construction.

Apparently the great cities of the world are very soon to get a glimpse of the exhibition grounds — but through the wrong end of an opera glass, as it were — since the Directors have granted a concession to a company to reproduce the grounds and buildings in miniature. According to report, these maps are to be exhibited at Boston, Philadelphia, New York, London, Paris, St. Petersburg and Vienna; the size is to be 45 by 90 feet — according to which scale the largest building will be over 17 feet long. All buildings are to be lighted by electricity and water is to run through the canals, and in general the minor details will all be most faithfully carried out. It is expected they will be ready for exhibition next August.

The water-color exhibition at the Art Institute has been well attended, but most of the pictures are by artists who do not live in Chicago, nearly two-thirds of the collection is said to have been shown at the recent water-color exhibition at New York. Landscapes predominate and show far more skill than the average figure pieces, although one or two of the latter are very noticeably good. The Chicago Society of Artists will open their annual exhibition this week, and many good things are promised.

THE LIMES ROMANUS. — The great wall erected by the Romans through territory now inhabited by German-speaking people, called the Limes Romanus, is to be systematically explored from end to end, the spots excavated where forts (castella) were erected, towers, baths, and other buildings for garrisons. Plaster reproductions of all objects found will be placed in the museum at Maintz, while the originals will go to the various Governments. From time to time the results of the survey and excavations will be published. — *Philadelphia Telegraph.*

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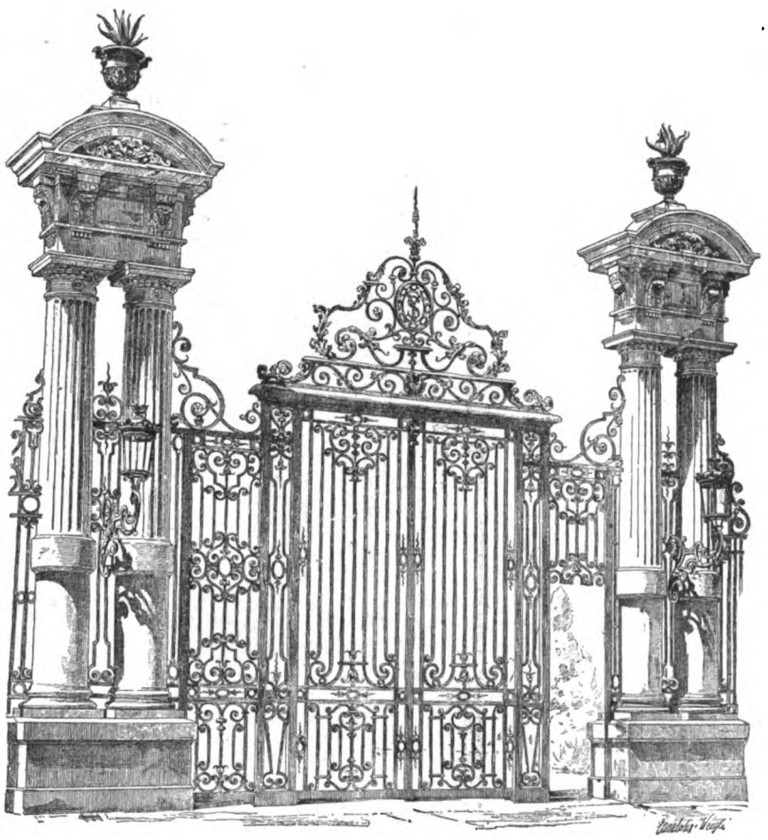
THE McKIM FELLOWSHIPS AT COLUMBIA.

THE jury of award in the first competition for the two Travelling Fellowships of $1,000 each, recently founded by Mr. Charles F. McKim in the Columbia School of Mines have just announced their decision. The two "McKim Fellowships in Architecture" are awarded to Mr. A. C. Muñoz of the class of 1889 and Mr. A. M. Welch of the class of 1890; Honorable Mentions to Mr. J. M. Hewlett of the class of 1890, and Mr. R. K. Mosley of the class of 1888, for design, and to Mr. R. D. Kohn of the class of 1890, and Mr. H. E. Donnell of the class of 1887, for construction. The jury consisted of Messrs. Richard M. Hunt, Charles F. McKim (the founder of the prizes), and Thomas Hastings, Jr., of New York, and Mr. Arthur Rotch of Boston. The same gentlemen served last year as jury for the "Columbia Fellowship in Architecture" established by the trustees of the college. In announcing their decision this year they bear testimony to a gratifying improvement in the quality of the designs submitted for their judgment, both as to composition and draughtsmanship. A sketch of the competition may prove interesting to the readers of the *American Architect*, particularly as the Fellowships have been established by a distinguished architect in active practice, as a tribute to the value of a thorough scholastic training in architecture. In the autumn of 1889, Mr. McKim presented a fund of $20,000 to the trustees of Columbia College, to be used in the Department of Architecture in such manner as they might deem wisest, and their decision, reached after conference with Professor Ware, to establish two Travelling Fellowships of $1,000 each, to be competed for biennially by graduates of the Department, was entirely approved by the donor. It was also decided that the winners should spend the prize money in foreign travel and study according to a programme to be prepared by them and approved by the college authorities. In accordance with these decisions the first competition took place in January and February of this year, and the second will occur in the winter of 1893. Seventeen graduates entered the lists; three of these, in out-of-town offices, doing the work under the direction of acceptable supervisors. One of them, Mr. Muñoz of the office of Theophilus P. Chandler, Jr., in Philadelphia, carries away a Fellowship, while another, Mr. Donnell, who is attached to the office of Mr. R. M. Hunt, as Inspector of the new Observatory Building in Washington, receives an Honorable Mention in construction.



The contest was divided into three sessions, separated by intervals of a few weeks for home study. The sessions were held in the evening from 7.30 to 10 o'clock, in the rooms of the Department. The first occupied the evenings of Monday and Friday of the first week in January, and was devoted to the preliminary sketches, which were filed with the Department authorities, each competitor retaining a tracing. The second session occupied the evenings of two weeks in the first part of February, with the exception of Saturday and Sunday evenings. These ten evenings were devoted to the drawing and rendering of the designs, which had been carefully studied during the preceding four weeks. The final session occupied four evenings, and took the form of written examinations, in graphical statics, stereotomy, office-practice and general construction. The subject of the competition was one familiar to old Beaux-Arts students, being no other than the famous "Museum for a Rich Amateur," to contain fifteen statues and fifteen pictures, three of each being *chefs-d'œuvre* requiring special accommodation; collections of coins and vases and a library and porch, or vestibule, were also to be provided. The arrangement of the pictures and statues proved somewhat of a stumbling-block to some of the competitors; but on the whole the solutions of the whole problem, both in scheme and in rendering were generally creditable. Those of the two winners and of one or two of the *mentionnés* were especially successful.

In the final award, the designs and the examination-papers on construction were each marked on a scale of 100, thus assigning equal importance to these two widely different parts of the competition. This proved most judicious, as it gave distinct recognition to technical training, to office experience and practical knowledge, which are so apt to be overborne in such competitions by the superior brilliancy and attractiveness of well-studied and well-rendered designs. It was particularly desired that these prizes should react on the men in offices, spurring them to higher attainments and more thorough study in the line of practical work and experience. This could only be done by conceding to excellence in this direction, a merit equal to that of clever designing and the result proved the wisdom of the decision, as the marks in construction determined the award of one of the two prizes, the other going unquestioned to one who led the whole list *both* in design and in construction.

The comparison of the designs and canvassing of their relative merits were performed with the greatest care and pains by the jury, to whom were referred the marks in construction. Each set of examination-papers had been marked by a different officer of the School of Mines, and it was the desire of the professor of architecture and his assistants to leave the final award entirely in the hands of the jury. The result gives universal satisfaction, the defeated candidates feeling that the work of the competition has been by no means thrown away, but has been both entertaining and instructive. Such a result has been hoped for and aimed at in all the arrangements of the competition, which in general character resembles last year's contest for the Columbia Fellowship, but with modifications which have rendered it less trying and less burdensome to those engaged in it. Fifteen of the seventeen who entered completed their whole work, as against nine who finished out of thirteen entries last year. Next Spring will take place the second competition for the Columbia Fellowship.

A. D. F. HAMLIN.

THE ILLUSTRATIONS.

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

HOUSES ON WALNUT STREET, PHILADELPHIA, PA. MESSRS. COPE & STEWARDSON AND F. M. DAY, ARCHITECTS, PHILADELPHIA, PA.

[Gelatine Print issued with the Imperial and International Editions only.]

THE right hand house, for Mr. Harrison, is the one designed by the architects first named.

COMPETITIVE DESIGN FOR THE BOARD OF TRADE BUILDING, MONTREAL, CANADA. MR. C. W. CLINTON, ARCHITECT, NEW YORK, N. Y.

[Issued with the International and Imperial Editions only.]

COMPETITIVE DESIGN FOR THE BOARD OF TRADE BUILDING, MONTREAL, CANADA. MESSRS. E. A. & W. W. KENT, ARCHITECTS, BUFFALO, N. Y.

[Issued with the International and Imperial Editions only.]

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SKETCHES BY THE *American Architect* TRAVELLING-SCHOLAR, MR. ALBERT KAHN.

[Issued with the International and Imperial Editions only.]

WHITE NATIONAL BANK AND SAFE DEPOSIT, FORT WAYNE, IND. MESSRS. WING & MAHURIN, ARCHITECTS, FORT WAYNE, IND.

THIS building is under contract to be built for Messrs. J. B. & J. W. White. It is 60 x 60 on the ground, to be built of St. Louis brown Roman brick with Indiana brownstone and Portage redstone trimmings. First story built entirely fireproof and is to be used for the Bank and Safe Deposits; second story divided in offices and third story for an assembly hall: estimated cost $40,000.

DETAIL OF THE ROOD-LOFT IN THE CHURCH OF ST. ETIENNE DU MONT, PARIS.

SEE the *American Architect* for February 28, 1891.

ROOD-LOFT IN THE CHURCH OF ST. GOMMARIUS, LIERRE, BELGIUM.

THE church was built between 1445 and 1557. The rood-loft is probably even later in date.

APARTMENT-HOUSE, MINNEAPOLIS, MINN. MR. H. W. JONES, ARCHITECT, MINNEAPOLIS, MINN.

DESIGN FOR THE SECOND BAPTIST CHURCH, DANBURY, CONN. MR. R. W. BRIGGS, ARCHITECT, BRIDGEPORT, CONN.

FURNITURE ON CLASSIC LINES DESIGNED BY MR. R. BROWN, JR., ARCHITECT, BOSTON, MASS.

THE greater part of the ordinary domestic furniture made in this country and sold to the people of moderate means, if looked at from the artistic standpoint, is not calculated to raise hopeful feelings as to the future of the decorative arts. Indeed, it may be truthfully affirmed that, with all the advantages which the present gives us, as to machinery and choice of woods, we have yet to learn how to make furniture that will be at once simple, tasteful and inexpensive. The Japanese have mastered this and can give us lessons, and we know that the old Greeks, whether they fashioned furniture or pottery, gave to all their handiwork some grace or beauty of form. Moreover, since their time, every artistic people under the sun, have been their debtors, and yet these tasteful forms are to-day just as fresh, beautiful and inimitable. We find them appearing in, and influencing such styles as those known as "Empire," "Adams," "Colonial," and in fact in all phases of Renaissance art. Seeing that these styles owe so much to Greek art, why may not we, too, draw some inspiration direct from the original fountain-source? If we are striving for the expression of the highest culture and refinement we cannot overlook Greek art; for there we find it in the most perfect form the world has yet seen. Other work may at first be more fascinating and impress us with its richness, but what other work impresses us as being so dignified, intellectual and above all, as having that quality of temperate restraint which never approaches the vulgar and meretricious?

The designs here given are not intended as examples of simple and inexpensive furniture but rather as an attempt to illustrate the gracefulness of Classic lines, the forms in themselves possessing some elements of beauty irrespective of any ornament. And where decoration is required to enhance the work this seems most fittingly attained chiefly by inlay or painting, preferably the latter. The use of brass or other metal in the feet or wherever lightness and strength is needed seems also legitimate and appropriate.

[Additional Illustrations in the International Edition.]

THE RUDOLPHINUM, PRAGUE, AUSTRIA. HERREN JOSEF VON ZIAK AND JOSEF SCHULZ, ARCHITECTS.

[Gelatine Print.]

A VIEW of one of the side façades of this building of which the front is here shown, was published in the *American Architect* for December 20, 1890.

DOORWAY OF THE LICHTENSTEIN PALACE, VIENNA, AUSTRIA. DE VIGNE, ARCHITECT.

[Gelatine Print.]

THE BAPTISTERY, FLORENCE. MEASURED AND DRAWN BY MR. ROBERT WEIR SCHULTZ.

CHURCHYARD WALL, HOCKERELL, BISHOP'S STORTFORD. MESSRS. BURKE-DOWNING & PHILLIPS, ARCHITECTS.

OUR illustration is from the architects' working-drawings of a new churchyard wall which has been erected at Hockerell, near Bishop's Stortford. As a churchyard wall it is remarkable for its original and effective treatment. The design is Early English, the carving and details being unusually spirited. The cost has been £570, and the work exceptionally well executed.

THE GREY COLLEGE, BLOEMFONTEIN, ORANGE FREE STATE, SOUTH AFRICA.

WE publish a design for this important undertaking prepared by Mr. Lennox Canning, A. R. I. B. A., and member of Imp. Inst. Austrian Engineers, and F. G. Goad, C. E., of Johannesburg and Bloemfontein. The ultimate cost of the buildings, including the master's house and high-schools, will be about £50,000, but the present expenditure will not exceed £20,000.

SOCIETIES

THE SKETCH-CLUB OF NEW YORK.

AT the annual meeting of the Sketch-Club of New York, held at the Hotel Hungaria, Saturday, April 4th, the following Executive Committee was elected — Messrs. Charles H. Israels, A. L. C. Marsh, Emil Ginsburger, J. Nat. Hutchins and Danford N. B. Sturgis. At a subsequent meeting, this committee organized by electing Mr. Charles H. Israels, *President;* Mr. J. Nat. Hutchins, *Vice-president;* Mr. Emil Ginsburger, *Secretary,* Mr. Danford N. B. Sturgis, *Assistant Secretary* and Mr. A. L. C. Marsh, *Treasurer.*

The Club feels that its prospects on the threshold of its third year are very bright and that its success and its continued and increasing usefulness both in a social as well as in a professional and educational sense are assured.

The number of its members is steadily increasing. It now has a membership of fifty-seven.

The secretary, who may be addressed at 48 Exchange Place, New York, will be pleased to give further information to those who may be interested.

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

GREEK SCULPTORS.

NEW YORK, N. Y., April 9, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Who was the greatest Greek sculptor? Are there any known works of Praxiteles, and where.

Yours respectfully, A. JONES.

[THE first rank is usually accorded to Phidias. The marble fragment "Hermes," discovered at Olympia, in 1878, is attributed to Praxiteles, so, too, is one of the groups of the Dioscuri at Rome. — EDS. AMERICAN ARCHITECT.]

BOOKS ON STONE-CUTTING.

AUGUSTA, GA., April 7, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Please give name and price of best book for stone mason who wishes to learn something about drawings, so as to be able to understand them. By so doing you will much oblige,

Yours truly, WM. ARCHER.

["*Masonry and Stone-cutting,*" by E. Dobson, price $1.00, published in Weales's valuable series of technical treatises is probably as satisfactory as anything you can find. This may be reinforced by a study of "*Problems in Stone-cutting,*" by S. Edward Warren, published by J. Wiley & Sons, New York, at $2.50. — EDS. AMERICAN ARCHITECT.]

SWITCHBACK RAILWAYS.

OAKLAND, CAL., April 2, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Being a constant reader of your valuable paper, I take the liberty to ask you where I could find specifications and particulars of the gravity or switchback railway, which would enable me to build one. I have seen them in operation in London and think it would "take" with the public here.

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Any information you could give me with regard to this matter either by mail or in your next issue will be gratefully received by

Yours obediently, H. v. Marle.

[Your best way is to consult the annual indices of the *Official Gazette* of the United States Patent Office, which you can probably find at the public library or the office of some solicitor of patents. — Eds. American Architect.]

THE *AMERICAN ARCHITECT* TRAVELLING SCHOLARSHIP.

To the Editors of the American Architect:—

Dear Sirs, — Will you kindly inform me through the columns of your paper, what the requisite qualifications are for an applicant for the examination of the *American Architect* Traveling-Scholarship.

What are the subjects of the examinations, and when and where do they take place. Yours truly, Draughtsman.

[The particulars relating to this scholarship may be obtained from our advertising pages, and we have so many inquiries of this nature that we will try to keep the matter in some position in the paper in every issue. — Eds. American Architect.]

SUGGESTIONS AS TO ILLUSTRATIONS.

Orange, N. J., April 11, 1891.

To the Editors of the American Architect:—

Dear Sirs, — I am a subscriber to your instructive journal, and, as I believe suggestions are invited by every well-regulated editor, I beg to say that I believe the publication of a larger number of the designs of Wilson Eyre, Jr., and Mr. F. M. Day, of Philadelphia, will meet with warm approval from your other readers. I noted with pleasure a colored print of the Turkish bath, but this was certainly a poor view. Cannot some interiors of Mr. Eyre's be received, in Mr. Drexel's house and the University Club, for instance? Don't forget the occasional details and perspectives of furniture. Several designers in Boston, notably of Davenport, Keeler, Lawrence, Wilde & Co. and Irving & Casson, do some fine work that, if it can be secured, is worth publishing.

Respectfully, E. C. Kellogg.

[We believe that the work of the architects mentioned by our correspondent is represented in our pages with average fairness to the many other capable designers; but, so far as we are concerned, we would willingly welcome more. As to interior work, we feel a delicacy in making any attempts to lay bare the privacy of individuals. We must rely for such material on the good offices of the architects, who are at once familiar with the character of the work which is at present concealed from the public gaze, and are also fairly able to determine whether their clients would welcome or resent an invitation to exhibit their private belongings. As to the manufacturers, they are unwilling to contribute their choice designs, and we are unwilling to accept any others. — Eds. American Architect.]

TO DRAW AN ELLIPSE.

Worcester, Mass.

To the Editors of the American Architect:—

Dear Sirs, — Mr. Woodworth and myself were looking over his back numbers of the *American Architect and Building News*, we came across where there was an ellipse drawn out by means of straight lines, but it does not form a true ellipse. We heard that it was afterwards corrected. Now will you please inform me in what number it was corrected or if you will again illustrate it.

Yours truly, A. C. N. Petersen.

[The error was corrected in our issue for October 1, 1887. — Eds. American Architect.]

THE NEW YORK CATHEDRAL COMPETITION.

Boston, Mass., April, 1891.

To the Editors of the American Architect:—

Dear Sirs, — Can you inform me whether the competition for the N. Y. Cathedral has been decided and if so, who is the successful competitor? W. Smith.

[It has not been decided. It is still an open question whether or not the Trustees will take any definite action beyond receiving and paying for the designs. — Eds. American Architect.]

NOTES AND CLIPPINGS

The Tomb of the High Priests of Ammon. — A grand discovery, writes the Cairo correspondent of the London *Times*, has been made of a vast tomb of the high priests of Ammon, monarch of the gods, and local divinity of Thebes, on the exact spot in the limestone cliffs of the Lybian mountain, west of Thebes, near Dehr El Bahri, where Brugsch Bey made his famous finds of Royal mummies in 1881. The tomb is 80 feet below the surface, and it has two stories, the upper one not yet opened. In the lower, 240 sarcophagi have been already discovered, the oldest dating back to the Eleventh Dynasty, 2500 B. C. There were also in the tomb 100 papyri and some large statues of the Theban Triad, Osiris, Isis, Nepthis, with vast quantities of statuettes and votive offerings. Everything was uninjured. The upper story is to be opened immediately, under the personal superintendence of M. Grebaut, Director of the Egyptian Antiquities Department, who himself made the discovery through native information.

What Nero really did for Rome. — According to Signor Lanciani, the learned Italian writer, the Emperor Nero has been libelled. Instead of being the cruel tyrant he is generally represented to be, he was a benefactor of mankind and a well-intentioned sanitary reformer. It has for centuries been commonly understood that Rome was set on fire and burned by Nero in the year 64, either through brutal malice or drunken incapacity and indifference. Signor Lanciani's investigations put a very different interpretation upon the matter. Nero desired to make many changes in the streets of Rome by increasing their width and making many of them more direct, and also to introduce many improvements by reconstructing public buildings. His efforts in this direction were met by an opposition from property-owners — it is a strange thing that property-owners have not changed since Nero's time — and were also embarrassed by the fact that the city abounded in temples, altars, and shrines which were inviolate. While he probably made light of the property interest, religious sentiment, the Emperor knew, ought to be respected under all conditions and at all times and he acted accordingly. He directed two architects, Severus and Celar, to prepare plans for the rearrangement of streets in certain parts of the city, making them as near to straight lines and right angles as the hilly configuration would render feasible. Numerous public squares were laid out and a system of sewers was planned. Regulations for buildings were prepared, in which it was provided that the height of houses should not exceed double the width of the street, that each house should be completely cut off from the adjoining buildings; that each house should have a portico in front, and that wood ceilings should be excluded from the first stories of buildings. Tents and booths were secretly prepared, and vessels were sent to various Mediterranean ports after grain, with orders to meet at the mouth of the Tiber on a certain date. In accordance with Nero's plan, the city was fired in numerous places, and, of the fourteen wards, three were entirely destroyed, and seven were burned in great part. The crowds driven out of their homes found the booths in the outskirts of the city ready for them. The grain-laden vessels appeared in time, and the townspeople were fed and housed during the rebuilding; the whole plan having been carried into effect without exposure, famine, or loss of life, although the population of the city at the time was very large. — *Iron.*

TRADE SURVEYS

There is a feeling of disappointment in jobbing, manufacturing and mercantile circles over the sluggish development of spring and summer business. Much of the dissatisfaction comes from the, perhaps, too brilliant anticipations indulged in early in the season. Clearing-house reports are not always a reliable barometer by which to judge. A careful investigation shows that the retail trade throughout the country is all right, but that the wholesale traders are not distributing products as rapidly to retailers just at this time as they think they ought to; their turn will probably soon come. Backwardness of retailers in stocking-up is reasonable and sensible; they simply want to dispose of what they have before buying more. Wholesalers and jobbers in certain avenues are disposed to regard this as an unfavorable symptom; on the contrary, it is a favorable one. The mere transfer of goods and merchandise from factories or warehouses to retail shelves is not always in itself a good thing. The retail business men of the country have learned some important lessons, and they are evidently profiting by them. It would be better if the present policy had been pursued years ago. Salesmen of large houses and manufacturing establishments report it more difficult this year to work off large quantities of goods on their customers than last year. That the volume of business this year will be as large as last it might be hazardous to assert just at this time in April; a good many emergencies may arise; there are no new developments during the past week. The business of the country is being conducted on a safe basis. There is very little seed of bankruptcy being sown; every buyer is endeavoring to keep within safe limits. Competition is hard at work keeping prices down to the lowest level. It cannot be said that the tendency of prices is downward, for they evidently have reached the lowest legitimate point in most branches of trade. Manufacturers of textile goods throughout the New England States have cried "halt" to the downward tendency, and would prefer to shut down rather than to cut further. In this industry there are, in fact, a few symptoms of improvement, if the testimony of some few responsible heads is to be accepted. There is great activity in nearly all textile branches, especially in hosiery and knit-goods. Mills are running full time in nearly all sections. The few exceptions only show the necessity of good business management.

Southern cotton mills are doing remarkably well. The export trade for Southern cotton products is increasing. Our Northern export trade for manufactured products generally is also growing. Hopes are entertained that the present reciprocity negotiations will soon produce results; of course, foreign countries are playing their highest cards to protect their interests in outside markets. Commercial men of high standing are the authority for the statement that the United States has much more to gain in the extension of trade in manufactured products than many of their manufacturers are aware of. They have for years past been giving too little attention to these possibilities; at the same time, there will be very close competition between American makers and foreign makers. The Old World will not tamely relinquish its control or its advantages, whatever they may be. The superiority of American machinery is being testified to in many foreign quarters. The industries are running along on the same quiet, conservative policy that they have maintained since the opening of the year. The larger manufacturing establishments, especially where machinery and equipments are being made, are all busy. Car-builders are also busy. Locomotive-builders are booking orders more rapidly than at any time, perhaps, for six months. The electricians and manufacturers of electrical equipments are enjoying a greater season of prosperity than any other industry. Hardware manufacturers are working full time in most factories. Wagon and carriage manufacturers report a good demand in the West and South. The iron trade is sluggish. Very little new railway building has been lately projected. Mining operations in the Rocky Mountain regions are, as a rule, thriving, and a goodly number of new properties are to be opened this year. An impetus has been given to the outflow of population into the newer Western States; settlers are mainly well-to-do people from the older States, who go there with some little capital and a good deal of experience.

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THE discussion over the law proposed in Massachusetts to forbid the use of arsenic in wall-papers, has brought out some curious observations. Some years ago, when the same matter was brought up, in much the same way, certain manufacturers expressed their conviction that pigments containing arsenic were objectionable for paper-hangings, and some of them reaped, we hope, a considerable reward for the care which led them to have all their papers analyzed and to sell nothing containing arsenical colors. Now, the case seems to be changed. The principal manufacturers in New York seem to be unanimous in testifying that paper-hangings cannot be made without arsenic, but that there is "not the slightest danger" in them. One of them, indeed, testified that "whatever traces of arsenic there were in wall-paper were a boon to health." "Arsenic was a tonic, and a good thing." Professor Chandler of Columbia College, testified as a chemist that "arsenic in wall-papers did no harm," and did not believe that sickness was ever caused by the absorption of arsenic from paper by inhalation; but several manufacturers admitted that they had stopped using Paris green in their papers.

WHY they should stop using Paris green, which is the best known arsenical color, if they consider that arsenic is a beneficent "tonic," is not very clear. Obviously, the arsenic on the paper could not act as a "tonic" unless it was taken into the system, and, if it were taken into the system at all, it must make a good deal of difference in the "tonic" effect, whether it was brushed off in large quantities from a badly made paper loaded with Paris green and London purple, or in small quantities from a hand-made paper in delicate tints; while the age and susceptibility of the subject would have an important influence on the "tonic" effect of a violent poison. The fact is that an admission of the beneficial effect of arsenical colors in wall-papers is also an admission of their noxious effect under different circumstances. If the poisonous coloring matter can be swept off by the dusting-brush in sufficient quantities to affect a healthy person favorably, a little more energetic brushing might easily dislodge enough to affect a delicate child very unfavorably. Several experts thought that no case of illness had ever been traced to arsenic in wall-paper, but we know, and we imagine that many of our readers know, of at least one case in which a sensitive child was constantly ailing, so long as it slept in a certain room, improved in health on being removed, and declined when brought back to it; and, finally, was completely and permanently cured when the paper was taken off the walls, and a different one substituted. Of course, this is not proof that the coloring in the paper was injurious, but it is strong evidence, and there is a great deal of such evidence available. We were told once, by a decorator and dealer of the highest reputation, that some of the Japanese wall-papers were so loaded with arsenic that the workmen who put them up were often made ill. As he paid the workmen for their time he had good reason for ascertaining the cause of their lost hours, and we presume it would take a good many chemists to convince him that, as one of them expressed it before the Massachusetts Legislative Committee, their sickness was "merely a Boston fad." To our mind, wall-papers of all sorts are objectionable enough, without spreading poisons over them, and if the manufacturers cannot get along without decorating them with arsenical colors, the architects will gladly help people to devise some more wholesome means of finishing their rooms. Arsenic now enters into pigments of nearly every possible color, and is said to give a certain freshness of effect which is desirable; but most people can dispense with the freshness, if necessary, and we are inclined to think that before long, unless they can be sure of not having "tonics" brushed off in dust into the air they breathe, they will dispense with wall-papers entirely.

OUR readers will remember the competition instituted by the *Cosmopolitan Magazine*, for designs for a public bath-house for New York, and may, perhaps, have seen the sumptuous design by Mr. John Galen Howard, which received the first prize. Although Mr. Howard's design was a beautiful one, it was for an establishment better suited to the use of a Roman Emperor and his friends, or a Millionaire Club, than to the more modest, but more urgent requirements of the plumbers, machinists, coal-handlers, expressmen, cooks, factory operatives and other persons, men and women, who have to work all day in the midst of dust and grease, and would like to go to bed at night feeling clean and sweet; and it is not surprising that the people who look on baths as the first hygienic necessity to be provided in great cities were disappointed in the result. Accordingly, a new movement has been started in New York, looking to the establishment of public shower-baths, like those which have become so common in Germany, without any attempt at swimming-tanks or other costly features. It is now quite certain that for public baths, intended to be of the greatest use to the greatest possible number of persons, the shower is by far the most suitable apparatus. Even the tub has nearly disappeared from public baths abroad, for tubs collect sediment, and must be very frequently cleaned, while they cannot be used to advantage without the aid of a sponge, which should never be allowed in any public bath. Moreover, a tub occupies almost the space of two shower baths, and requires about twenty times as much water for a satisfactory wash. The swimming-tank is even more objectionable than the tubs, and far more expensive. The summer floating-baths of our seaport towns, moored in a tidal current, are safe and clean enough, but the very idea of an enclosed tank, filled with "soup," and inhabited by a group of filthy tramps, suggests contagion, and no such arrangement would be countenanced by a municipal Board of Health.

WITH the shower-bath, on the other hand, a small amount of water refreshes, cleanses and stimulates more than the same amount applied in any other way. The bather stands in a box, large enough to give him elbow room, and receives a shower of warm water, from a tank or sprinkler-pipe over his head, where he cannot meddle with it, to its disadvantage. He is supplied with a bit of soap, which he rubs over his limbs in suitable sequence, and emerges more or less clean, according to the energy he has displayed in his operations, having enjoyed the luxury of having nothing but clean water in contact with him all the while, and of knowing that he will leave no epithelium cells or other débris in his compartment to greet the next occupant. In Germany, where bath-houses of this sort are built as an investment, and fuel is skilfully utilized for drying towels as well as for heating water, a bath, including soap and towel, costs about two cents; and this fee pays all expenses, besides the salary of the attendant, and a good interest on the capital invested. In New

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York, although the cost of attendance would be greater, the water should cost less, and it is extremely desirable, for the sake of the humble people who need most the health and comfort that it gives, and to whom two cents is a very appreciable part of the day's income, that the cost of the bath should be kept at the lowest possible point. Messrs. Brunner & Tryon, of New York, in consultation with Dr. Simon Baruch, a distinguished physician, have made sketches for a simple establishment of the sort, which look promising, and we trust that architects in other cities may soon be employed on similar problems, not for the sake of designing imposing façades, but for securing the utmost economy and convenience possible. The best architects, contrary to the usual idea, are most likely to solve the problem successfully. Only thorough training and resource, joined to considerable mental force, can produce the happy solution, which seems so obvious afterwards, that every one wonders that it was not thought of before; while the feeble designer copies his plan from some one else and devotes himself to fitting it with a costly front. It should not be forgotten that the people for whom such baths are chiefly intended are the laborers, the hod-carriers and porters, who make an income of three hundred dollars a year support themselves, their wives and three or four children, honestly and happily. They would like to be clean, as well as good, and would willingly sacrifice some of their scanty luxuries for that one, but a fee of even five cents a week for a bath would amount to more than a child's boots and shoes, and shoes are more necessary for children even than baths. Let the fee be two cents, or, if possible, one cent, and thousands of families would manage to secure both boots and baths, to the unspeakable advantage of the community.

THE Lafayette monument is at last in position at Washington, but has not yet been formally exposed to public view. The history of the choice of a site for this object, which, as the production of Falguière and Mercié, two of the greatest artists of the century, is likely to be for many years the most valuable work of art in Washington, is a curious illustration of the idiotic fatuity which curses the administration of public affairs in Washington, and, indeed, throughout the country. As every one knows, the beautiful square which faces the Government Reservation, and is overlooked by a line of the stateliest buildings in the world, is named after Lafayette, the courtly young noble whose enthusiasm for the cause of the poor and oppressed did so much to shape the destinies of the two greatest republics on earth. It might be supposed that a statue of Lafayette would be very appropriately placed in the middle of the square named after him, but, at the time the square was named, there was no statue of its hero available, and soon after, and before anything had been done about getting a Lafayette monument, a statue of Andrew Jackson happened to be made, and, as usual, a search had to be instituted for a place to put it. Lafayette Square being a conspicuous place, and possessing no sculptural adornments, the Jackson statue was put in the middle of it, undoubtedly with the idea that it should be moved if its place should be needed for a figure of the personage to whom the square was dedicated. Time went on, and no one could make any political capital, or gain a smile from a fair "sculptress," by securing an appropriation for a monument of Lafayette until a year or two ago, when, by some abnormal exercise of gratitude and taste, a commission for one, on a noble scale, was given to two French artists of the highest distinction, a sculptor and an architect. working together, as sculptors and architects generally do abroad. While the modelling was going on in Paris, the foundation for the monument was laid in Washington, under the direction of a commission, consisting of Senator Evarts, Secretary Proctor and Mr. Clark, the architect to the Capitol. These sagacious politicians, who were well aware that any attempt to move Jackson out of the way, to make room for the rightful owner of the position which he had temporarily occupied, would be followed by shrieks and groans of agony from their political opponents, meekly selected a site on the edge of the square, facing the White House, leaving the hero of New Orleans in undisturbed possession of the principal position. One would suppose that this was a sufficiently modest location for a monument which comprises eight bronze statues, one of which, that of Lafayette, is more than ten feet high; but he must be an ingenious person who can elude the vigilance of a politician intent upon advertising himself; and the foundation was hardly in before loud complaints were heard, designed to resound, as they undoubtedly did, throughout the Mississippi Valley. If, it appeared, the Lafayette monument were placed on that foundation, it would obstruct the view of the Jackson statue from the sidewalk in front of the White House! It might be argued that the persons who preferred to look at the Jackson monument, instead of the Lafayette group, would be those who would want to inspect the curious spectacle of a bronze horse "a-rarin' up" from a much nearer point of view than that afforded from the sidewalk in front of it; while, if any wished to see the equestrian figure shrouded in the enchantment of distance, they could still do so by extending their necks a trifle, or, at most, walking a pace backward or forward; but these considerations were of no avail with people who thought that they could use Jackson's name to conjure votes from people who could not have told whether Jackson was a contemporary of Jefferson Davis or Alexander the Great; and a Congressional order was passed, requiring the position of the foundation to be changed. This has now been done, and the monument stands at the corner next Pennsylvania Avenue, in a place where, at least, it could not possibly offend the most sensitive organization that Mississippi patriotism ever produced. The Washington reporters smooth over the ridiculous treatment accorded to what will probably be for many years the most important work of art in the principal city of the United States, by saying that the figure of Lafayette looks toward "the Washington Monument and Mount Vernon." Considering that the latter attraction is a small wooden house about twenty miles off, and that the group of French heroes would need telescopes to get a satisfactory view of even the Washington Monument, there is not much comfort in the minute dose of sentiment contained in this observation, and we fear that the hard sense of people impervious to claptrap, who comprise the vast majority of the inhabitants of this country, will lead them, after all, to the conclusion that the beautiful group, an honor to France and ourselves, and a fitting memorial of the days when France and the young American republic, hand in hand, ventured first, through blood and fire, into the path of universal liberty, instead of being put into the place intended for it, and where it belongs, has been simply dumped into a corner, among the scavengers and newsboys, at the demand of people who do not believe even their own foolish arguments, and only urge them because they think they are deceiving some one else into supposing that they believe them.

IN illustration of the use which open elevator shafts may be in case of fire, a story was told at the Combined Committee meeting in New York of an insignificant fire which caught in a certain building, next the party-wall. There were seams in the wall, which allowed smoke to pass through, and, for some reason, the smoke preferred to take that direction. The original fire was easily extinguished, with a trifling loss, but the smoke which got into the adjoining building, although unaccompanied by a spark of fire, ruined ten thousand dollars' worth of property. In this case, if an elevator shaft, with a strong draught, had been open into either room, it would probably have cleared the smoke away without injury, and even in a dangerous fire, the risk is much diminished if the smoke is allowed to escape, so that the firemen can breathe, and see about them. For this reason, the fire-engineers, in attacking a conflagration, always, if possible, send men on the roof of the burning building, who reach over the cornice, and break the upper windows, not, as is sometimes imagined, so that streams of water can be thrown into them, but to draw away the smoke from the lower stories, and enable the men to see just where the fire is. It is evident that the two uses of brick elevator shafts, as closed chimneys for keeping fire in, and open ducts for drawing smoke out of the upper stories, are incompatible, and the Commissioners who drew up the new, and very strict building law proposed for Boston, decided to modify the present rule, which requires a brick shaft for every elevator, and allow both freight and passenger elevators to run in open wells, protected only by wire netting. Elevators of the same kind are also permitted in the West, and it remains for careful investigation to show whether, on the whole, brick shafts are advantageous or the reverse. In this inquiry, the insurance officials, particularly those of the mill insurance companies, to whose admirable records the art of building is already much indebted, can be of great service, and it is to be hoped that the question may soon be definitely settled.

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A RUN THROUGH SPAIN.[1]—X.

THE WHITE CITY AND A GLIMPSE OF AFRICA.

"SENOR," said our pleasant landlord, as we went out through the *patio* of the Europa, "you will return to Seville some time, for everybody makes two visits to our city, one to admire it, and the next to know it perfectly."

"Very possibly" we replied. "One can run down to Cadiz and Gibraltar, follow around the Horn to dirty Malaga and beautiful Grenada, and is then again ready to return to Seville and take his parting look before going North again. Yes, it is very possible that we shall see Seville again."

Meanwhile we are packed into our compartment with some biscuit and wine, and have noticed that two fellow travellers, friends of the Escorial, are ahead of us, and undoubtedly bound for the same place, while beside us is an old friend of the good steamship *Alaska* whom we have again met away down here.

Seville gradually fades away, and as we look for it from time to time, building after building disappears. The Giralda looms up still, and the Cathedral actually seems larger than ever: distance lends an enchantment to the scene, and the sun as it sets is making things golden with its subdued light. Yes, we say, possibly we shall return to the old city, fast fading from sight, for it is a gem which bears inspection for a long time, and is full of an interest which only deepens with closer acquaintance.

We have left the city and are on our way to Cadiz, a town so totally different that the change is much like the jump into cold water after a Turkish bath. Seville, feverish with excitement and gaiety, Cadiz beautiful in its whiteness, quiet and full of repose, but as dead as the Dead March in "Saul." Nothing could be more beautiful than its rock-clad situation with the bay running around to its harbor, and girdling its other side, and the whole mass of town between, as white as snow. As you look at it from the bay side, or as one sails out of the harbor, the embattlements start directly from the sea and encircle the city for four miles as with a girdle. But one must not forget to note the startling contrast between the water and the land; as well-defined do they seem as the white figures on the drawing of a blue-print. Blue sea and blue sky, and a town of houses, roofs and walls, absolutely as white as white can be.

On landing we walked up a little street, with our baggage on a man's shoulders. The whole mass of the houses seemed to hang out into the street, which being only about eight feet wide gave a close, cool effect not unwelcome, as the sun was shining down with terrible fierceness. The effect was owing to the little projecting bays and balconies with which each house was provided, certainly showing the neighborly feeling of the occupants, who could look into the opposite rooms almost as well as they could see around their own. In shaving or dressing of course this was an obvious gain, as you could use your neighbor's mirror almost as well as your own, but at times it was rather embarrassing, and apt to lead to confusion amongst members of a family. Strong wooden shutters, however, were provided which could be closed, but then they absolutely shut out both light and ventilation.

Cadiz differs from Seville in the method of building the *patios*. Cadiz seems to prefer close ones glazed over at the top, often with two or three stories of balconies.

After getting duly settled, we strolled out through the little streets, finding little of interest save the famous sea-walk and the beautiful sea. Hailing an old boatman whose face was seamed with furrows of age, we got aboard his boat, a heavy old craft with low mast and long lateen sail, stained reddish and extremely dirty. A cigarette opened the old fellow's vocabulary, and we found him to be a veritable sea-dog, up in all the Spanish lore of his city.

"How many years have you been on the bay?" we asked.

"Fifty years, *Señor*, and have seen many changes," he replied.

"Has Cadiz always been as white as we see it?"

"*Qu'en sabe, Señor.* I have never seen it looking any different, and have whitewashed my own abode every year."

"Is it true that Cadiz was founded by Hercules long before the Christian era.

"It is true, *Señor*," said he with a serious air, "and you will see the motto of Hercules grappling with two lions on the walls of the city."

The afternoon was far spent when we turned about and pointed back for the old pier. Lights were beginning to sparkle in the town when suddenly seaward sprung a light from a lonely beacon.

"See!" cried he, "The old sea-wolves have lit their lamp."

"The sea-wolves!" we exclaimed.

"True, *Señor*," he replied more seriously. "For several years that light has sprung up from the beacon, and it is thus kept lighted by the sea-wolves."

Thus is the electric light considered by the ignorant fisherman, who cannot understand its power, and are content to believe the imaginative lore of the city. It was interesting at any rate to talk with such old fellows, and see the simple faith that seems to cling to them, refusing to accept the well-known modern agencies that have worked change upon change.

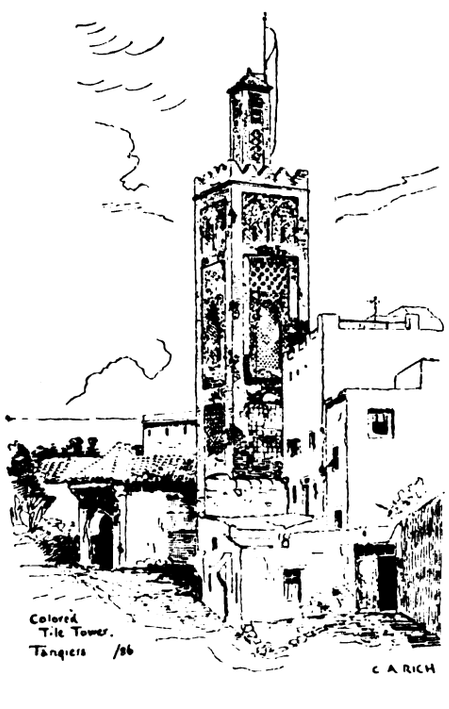
One has, of course, to see the famous old church of Los Capuchines, not because of any intrinsic beauty, but because the poor Murillo must needs tumble headlong from his scaffold while painting the "Marriage of St. Catharine," and shortly after die from the injury thus received.

But by far the most interesting trip is a walk around the Alameda. Imagine a lovely narrow garden encircling such a city, with huge palms, orange and lemon trees and immense cacti, while above them runs the irregular line of white roofs with little mosque-like domes on top. The walls of this promenade run straight down into the sea, and the waves dash against them with huge rollers. As beautiful is it as the promenades of Nice or Naples, and here the ladies of the town show their latest importations of dress, and talk over the gossip of the latest scandal.

We spent several days under a charming sky, and were beginning to think of passing on to the next place of interest. I had been studying up somewhat about the facilities of an African trip, and so proposed it one morning to our little group.

"Shall we go to Africa?" said I, as we sat far out upon the fortifications of Cadiz and gazed over the sea. Directly opposite, away across the water, was our own home America, to the North the ground over which we had passed, while to the South we had but one more place of interest before it would be necessary either to jump off the rocky promontory of Gibraltar, cross the Mediterranean Sea to the coasts of Africa, or else turn back and commence the return. The idea of visiting Africa was extremely exciting, although we could not know exactly what it meant. Childhood's thoughts had been of sunny Africa, and a few years had added to it the thrilling experiences of savages and roast missionaries, while later study, although it had divested the country of any such canabalistic tendencies, yet replaced them by full as interesting accounts of the sandy deserts, the voluptousness of the Moors and the dusky Moslems, not to speak of the homes from which slavery drew its tan-colored recruits. We all voted to go to Africa, so I went down to the wharves to see when any boat would be sailing to the African coast. Announcements of such events are posted on colored sheets on the walls of the town, for it is absolutely impossible to know when any boat will arrive, or sail: it is merely a matter of chance. "When the boat arrives," say they, "then we shall know when it will sail."

We found a colored placard at last with the pleasing announcement that a steamer was expected from the North on the next day morning and would leave in the evening for Tangiers. So we wandered down to the shipping-office and demanded tickets for the trip.



"The boat sails to-morrow?" I asked.

"Ah, *Señor*, who can say?" he replied.

"Why, what do you mean? there are your placards of announcement."

"Yes, but," with a shrug, "who can tell if there will be any boat here to sail. It may be delayed several days."

"Do you mean there may not be any boat after all?"

"Certainly, *Señor*, if there is no boat it will be impossible to sail, of course."

"Ah, yes, of course," we said, thinking of our own country where ocean steamers start to a minute, and telegraphic communication establishes the whereabouts of almost every boat.

[1] Continued from No. 797, page 8.

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This charming repose of manner was certainly refreshing. When the boat arrives, then will it sail. How simple an arrangement! Why did we not think of it before. It may be to-day, it may be to-morrow, or next day, or next week — possibly never.

Fortunately, however, a steamer of another line was already in the harbor and was to sail that very evening, so boarding a little lateen-sailed craft, a half-hour brought us alongside a good sized French steamer, commodious and pleasant.

A quiet night's sail, and the next morning brought us so far that the high mountains of the coast loomed up in the distance, blue and cold. This was about five in the morning and presently the east began to grow warm with the coming sunlight. Warmer and warmer grew the horizon as we churned our way along over a perfectly smooth sea, until at last the glorious orb of morning rose out of the sea and cast its rays upon the hilltops of Morocco, a sight never to be forgotten. Higher and higher it rose as we approached the land, the hillsides began to glow under its warmth, little patches of color changed to groups of palm trees, a long line of yellow showed itself to be the commencement of the desert sands back of the seashore town, while the little black moving specks resolved themselves into long lines of camels, laden and coming into the city. Now arose patches of white as Tangiers became visible, and back of the city white domes arose surrounded by patches of foliage. Tangiers was before us with its old Moorish walls and towers, and one tower there was with minarets that glistened with sparkling light as the sun touched its colored glazed tiles. What a sight! The sky a turquoise blue, with fleecy white clouds touching it here and there, the bluer water dancing and sparkling in the sunshine, and the white city backed up by the gray mountains looking still hazy in the far distance!

"A perfect scene from the '*Arabian Nights*'" said one. "'Tis the end of the world surely, there seems to be nothing but mountains

Interior Moorish Mosque

beyond," exclaimed another. "Aye, and here comes the avenging angels to carry us off," said a third. Sure enough, it did look that way decidedly, for no sooner was the anchor down than a half hundred Moors, Turks, Jews and Negroes clambered up the sides of the ship hanging from rope, spar or bulwark, and grinning at us with avaricious eyes.

"Why they are dressed in peanut bags!" we exclaimed.

"No, not dressed," we thought, "undressed more like, for they are certainly as near it as possible." A loose baggy cloak of any and every imaginable kind of stuff, picked up in odd lots and sewed together, seemed to be all they wore except a red fez or turban on the head, and yellow slippers or nothing on their feet. These completed the costumes, certainly not extravagant either in price, quantity or quality.

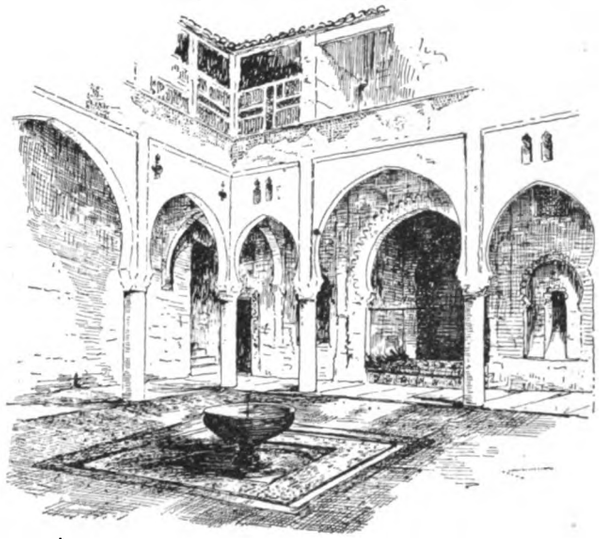
In the midst of this half-civilized looking crowd stood a young fellow of Hebrew mien, but master of the whole group. He boarded the ship quickly, shouted to some Arabs in a tone of command and then turning to the passengers spoke in Spanish to one, in French to another, in German to another, in Arabic to still another and turning to us commenced in English.

"Well *amico*," I said, "how many more languages can you rattle off if you please?"

"Whatever you wish," he said, and turning sharply around rushed at a half-dozen negroes and almost slung them over the side, while he turned on a torrent of language at his Infidel brethren which showed him to be fully competent to run the whole country.

He straightened us all out in a short time, filled the boats with baggage and living freight, of which we formed one boat load, and at last gave the word of command to start for the shore.

Our boat was manned by a fierce-looking dusky Moor, a negro as black as the blackest ink manufactured, and a dark Arab boy who constantly chattered to the grave Moor. Of course we could not understand a word they said, and the language was so different from



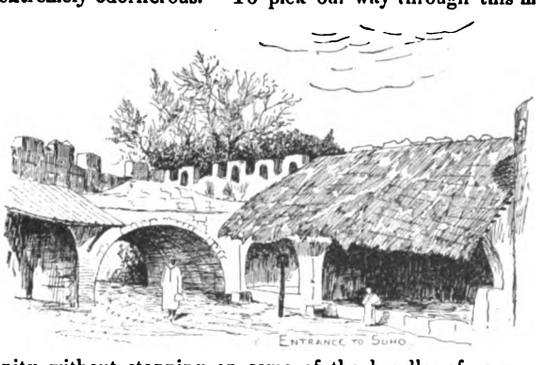
anything we had heard, that it was totally incomprehensible. Thus were we launched from one world to another, where everything was entirely new in customs, language and appearance.

Had it been low tide, and I sincerely wish it had been, we should have been landed upon the backs of the Arabs and dumped on the sand with our baggage, but as it was, the tide was well up the beach and we were landed in the conventional method upon a little staging loaded with shouting and gesticulating devils, who endeavored to grab our bags and bodily carry us off. And here entered upon the scene our good guardian angel, in the shape of a fine-looking Moorish guide, whom I engaged on the spot to pilot us around while we remained in Tangiers. His name was sufficiently artistic to be mentioned, for it was Mohammed Patecola, and a better fellow it would have been hard to find in this country where every one looks as if they would cut your throat for a pesata.

Patecola was dressed much like the rest, with a single garment of white rough stuff and a pair of yellow slippers. His wardrobe was not extravagant but extremely well calculated to keep cool and airy. The cloak had a pointed hood which went over his head and made him look not unlike a monk, had it not been for his smiling dark face and sharp eyes, which glistened with fun as he enjoyed our strange exclamations of surprise at every step.

Walking up the beach we passed through the customs arch, where sat an aged old turbanned Sheik, in cream white robe, grave and solemn, and seated crosslegged under the projecting hood of the arch. He was not so grave but that he extorted his entrance-fee from us, although nothing was due as we had nothing dutiable in our bags. But all the same we paid him, as it looked as if he could make trouble for us in a thousand ways if he cared to do so. He must make hay while the sun shines and his sun will, presumably, set after one year's office. He looks as honest as a saint, but in reality is as dishonest as the proverbial New York alderman and would take your last pesata if he dared.

Patecola, however, saves our pockets from too heavy a levy and shoulders his way up a winding path only a few feet wide, between two high walls. By this time the sun has got well up in the heavens and the work of the toilers has been done for the morning. Along these walls, there in the shade, lay dozens of half-naked savage-looking fellows in all attitudes, covered with vermin and dirt, indolent and extremely odoriferous. To pick our way through this mass of



Entrance to Soho

humanity without stepping on some of the bundles of rags was no easy task. Patecola smiles and chuckles to himself, gives somebody here and there a poke to make just room to pass. I give you my word it required a strong heart and stomach, and the nostrils of an apothecary to stem such a tide.

Here we pass a woman, the first yet seen on these foreign shores;

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she is totally enveloped in a gauzy scarf-like cloak, wound around her body and covering her from top to toe, leaving exposed only one eye, a saucy looking little bead which turns and watches us as we pass. From eight years of age upwards, says Patecola, a female must never show her face in the street, but must be content to roam around a veritable one-eyed beauty.

Here comes a huge negro, black as the ace of spades and clad lightly like the rest. Surely he must speak the language of our native land. But no, Patecola knows him, and jabbers away in the unknown tongue, and reminds us that instead of his being the stranger, we are the strangers and are treading upon the soil of Africa where he is at home.

You may ask how we were enabled to carry on any conversation with our good guide Patecola, but it is only necessary to say that with a smattering of Spanish and a gesture, often more expressive than elegant, we managed to pass our thoughts from one to the other; but we could not help thinking what a grand thing a little Volapuk all over the world would be, a universal language for all. Nevertheless, we caused much sport and enjoyed it hugely ourselves.

I could not stay in the hotel a moment, so interesting did everything seem. Here we are, only a few hours' sail and yet transported to another clime, another country, another language, another people, and scenes to which the eye is an entire stranger. Are we surely awake, and is it reality or only a dream? We pinch each other, think of America and friends, and joyfully rush out for the enjoyment of the moment, knowing full well that in a few months we must enter again the hum of everyday business and our experience here will be in reality like a dream of the past. Yes, pinch us again, good Patecola, and make sure that we are really here and not somewhere else.

Here comes a troop of beggars; we must surely be awake for beggars have nothing in common with Aladdin or his golden lamp, or the pleasures of the "*Arabian Nights.*" They are dirty and half-dressed and have to be roundly scolded before they make off in another direction. They eye us suspiciously, for they hate strangers but love their gold. Patecola smiles! Fine-looking fellow he! He enjoys every moment surely, for we are as new to him as he to us, and he likes the excitement almost as much as ourselves.

We passed down again through labyrinths of dirty lanes, none wide enough for any carriage, all lined with drowsy humanity, and soon arrive at the principal street that runs irregularly up the hill, through the public square and out to the plains back of Tangiers. Here is a Moorish arch with a fountain in its centre, and here are gathered a few women enveloped in their cloaks, with only one eye visible. They carry earthen water-jars on their heads, holding the jar with one hand and their garment with the other.

Here are the famous little bazaars so often pictured in Moorish sketches, one story high, and each one only about six or eight feet wide. In the very entrance sit the Moors, crosslegged, stately-looking old fellows, most of them surrounded by their wares on all sides, composed of silks, curtains, guns, swords, knives, slippers, cushions, pipes, murderous looking daggers and all sorts of Oriental wares. We pick up some curtains, of a rough material yet extremely artistic.

"*Quanto vale, Señor?*"

"*Diez pesatas, Señor.*"

Ten pesatas! Two dollars!

"*Diez pesatas*, for a dozen?" we ask.

He does not see the joke, and looks as glum as a sphinx. Patecola does however, and smiles.

The Moor looks grave and repeats his "*diez pesatas.*" We say "no," and bid him adieu.

"*Ocho pesatas, Señor,*" says he, calling us back.

"No, *Señor, esta mucho,*" we say, regardless of pure Spanish.

"No, *esta pocho,*" he answered.

"We will give you *cinco pesatas* a pair, and take four pairs," we say as a parting shot and start to move off.

But the old fellow never lets a bargain go and so calls us back, does up four pairs of the curtains and we go on four dollars poorer and four pairs of curtains richer.

Patecola smiles, probably knowing that we have paid enough, but we also smile back and say "all right, old Patecola, if they are not worth that much they are worth nothing.

Here is a merchant reading an old Koran. We try to buy it of him, as it is an antique, bound in pig-skin, but he will not sell it; it is his Bible and he thinks more of it than the average Christian I am afraid can conceive. He will sell you a cheap little copy of the Koran, but not that one. We want that one or none, so we pass on again, buying here and there a trinket, and enjoying ourselves hugely. Indeed to stand in the street for a half-hour is to confront a perfect panorama of motion and color, which interests us because of the absolute novelty of everything around. Suddenly a huge black fellow appears opposite us, and shouts and howls and jumps around in a strange nervous manner. He is black and villainous looking and his body is naked except at his waist, while his hair is long, straight and oily like an Indian; he is anything but clean, too, being covered with blood and dirt. He carries in his hand a large, ugly, hoe-like knife and around his neck are a dozen sharp bodkins which he seizes and pokes around as he howls. He holds them up before us, glares, shouts until we cannot make out whether he means to transfix himself or us with his barbarous instruments. We look with questioning gaze at Patecola, who laughs and says "Give him some little bits of money." So we fish out some copper coin, always ready to pay the piper, while he bowing low chooses one of his bodkins, whose size is supposed to be measured by the amount of money given him, and without further ado thrusts it through his arm without a groan, and bows again as much as to say, what do you think of that? To see this naked, half-civilized being thus maltreat his ugly carcass, already covered with wounds was not a very pleasant spectacle, still, for the advancement of science, I would have paid a good sum to have seen him make away with himself entirely. To this end I slung a handful of coins at him and was about to prepare for his total dismemberment by means of his vicious looking hoe, when the remainder of the party pulled me along out of his way, while he probably further amused the audience by cutting off a part of his scalp or something equally disgusting. It was a horrible sight and tells much in regard to the ignorance of these barbarians, whose blood seems to be measured by the amount of money they can collect for the shedding of it.

But the scene again changes as we enter a large open square packed with all kinds of beggars, blind men who have plucked out their eyes in order to enlist sympathy and howl on the corners some terrible words which Patecola interprets to mean "blind, blind, blind!" Frightful old hags try to sell rotten vegetables and garlic, dirty feathers plucked from the game exposed for sale, but through the midst of this pass fine-looking Moors seemingly regardless of the surroundings and engaged in deep meditation. Some are on horseback with their guns slung over their shoulders and it is remarked that the horses are of Arab breed, full of life and fire; magnificent specimens.

Pushing our way along through groups of poor overladen little donkeys, we pass through another archway and immerge upon the famous Soho or public square, which seems to be in this case on the outskirts of the town. Here are groups of all nationalities, including the Bedouin Arabs, robbers from away back, and Jews, whose descent is seen at first sight. Here, too, are groups of camels squatted down with their long necks and singular looking heads bobbing around continually. I cannot begin to describe the scene as it looked, because it was like the slides of a kaleidoscope, in which were black faces, white faces, bronzed faces, heads entirely bare, heads turbanned or covered with the red fez, women with their peek-a-boo eyes, and men and boys with not enough on to hide their modesty even, while the children many of them were surely in their birthday costumes. Donkeys braying with the exhausted grunts of a wheezy pump-handle, necromancers of all kinds, snake-charmers and droves of beggars, dirt and garbage in profusion and odors indescribable — if you take all this and a hundred other things and put them within the walls of a box and shake them up, you can get some faint idea of the sight that greeted us as we entered the Soho of Tangiers.

I desired much to get some of those peculiar long guns of the Moors and so advanced into the middle of the square where were half a hundred people huddled around a dark-faced Arab who, with strange gesticulations and much mumbling, was loading one of these long guns with powder and ball. He, like all the others, was urging the donation of copper money, for which he would go through with the William Tell act. We threw him some coin, which he acknowledged with a profuse bow, and proceeded with his loading, after which he placed a boy some hundred feet away with a turnip in his raised hand. Then he lay down on the ground, all the time talking away while a couple of men rapped away on some indescribable instruments as an accompaniment and poising his long rifle on his toe, fired away. Sure enough crack went the turnip, rolling out of the boy's hand. Of course he was ready for a bargain, and helped out by Patecola, I bought his gun for a song, and had it sent back to the hotel. It stands now with another one beside my old clock, a lasting remembrance of this strange land. It is six feet long, as light as a common small gun, and has a chased *repousée* barrel, and stock inlaid with silver filagree and a Moorish name. In order to give this fellow a few copper coins we had taken a five-cent bit of silver, bought three pomegranates and had received in change literally as many copper coins as we could hold in our two hands. They were of artistic design and covered with Arabic inscriptions. A few of these were the price of a shot, and were gratefully received by the marksman.

"But how long will he do this sort of thing?" we asked Patecola.

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"All day long, or until he gets enough for a lodging and a pipe of keef in the evening."

"And how much do you suppose that will be?"

"Oh, about a pesata, probably."

"And how many boys will he require for these experiments?" we asked laughing.

"Oh, he never kills one; but suppose he should, there are plenty more," replies our philosophic Patecola with a shrug and a laugh.

But still another group interested us, although it was a hideous sight and repulsive in the extreme. There squatted a horrible wretch, the serpent-charmer, one of the noted entertainers of the Arabs, and one often depicted on canvas by our best artists. They pretend to belong to a band of magicians, who have received power over venomous animals to such an extent that even their bites are harmless. Whether there be any truth in their power, it is impossible to say, but most surely the bites do not have any effect, as is daily seen. This old fellow was naked to the waist, with dirty black hair and sunken cheeks, from which looked out a pair of eyes as vicious as the eyes of his reptiles among which he lived. He also had music surrounding him, if such sounds can be called music. It was supposed at any rate to add enchantment to his powers, but was more villainous than a cracked country melodeon. The sounds came from a shrill sort of flute, accompanied by a tom-tom in the hands of an attendant, and continued during the five minutes in which he was supposed to gain control over the snakes. In like manner he hopped around a large, black, dirty bag, which upon closer inspection proved to be a pigskin tied up at the legs and neck and all the time wriggling and twisting in a horrible manner, most infernally suggestive of its contents.

He recited the history of his gang of charmers, at least that is what Patecola explained, told where the snakes came from, made passes the while over the hideous black bag, and emphasized his howls by wailing out notes on the flute in the minor key. Of course money was his object, which he collected as he proceeded and at last commenced his business. Things began to be rather exciting as he opened the bag and hauled out long writhing snakes, uttering the while, a running incantation. With these whip-lash ornaments he performed all kinds of tricks, which the snakes emphasized by darting out their long tongues and hissing with rage; and he ended by taking the tail of one of them in his mouth, and swinging his snakeship over his neck. Then he put his hand into the bag and drew out another one, larger than the first and tied the two together. Then a third, and a fourth, until snake and man seemed to become one object, repulsive and horrible. What else happened I know not; we had seen enough and started for the hotel.

A good *siesta* is the order of the afternoon in Africa and the latter part of the day we spent in a walk along the beach which stretches away for miles, and gradually loses itself in the desert sands, over which long lines of camels slowly pass.

When we arrived at the hotel again the moon was shining softly, casting a long shimmer of light across the sea and the only sound that reached us was the low monotonous ripple of the waves as they broke on the beach below. To our right were the low roofs of the houses, on which could be seen here and there bundles, which proclaimed the presence of sleepers all about us. One of the most beautiful sights was the tower of the mosque near by, which being covered with colored glazed tiles, threw out flashes of soft, translucent light.

Are we in Africa! Can it be possible? Surely it was so, for a low chanting sound suddenly broke the stillness of the night and the wail of the Moorish watchman was heard as he chanted his watch.

"God is great! It is better to pray than to sleep!"

C. A. Rich.

(To be continued.)

The Expiring of the Bell Telephone Patents. — The oft-repeated assertion that telephonic service cannot be afforded at a lower rate than that which prevails in most of our large cities, and the oft-repeated statement on the part of the American Bell monopolists that the "larger the business the larger the expense" — which is contrary to all known data of commercial science — have of late received a most convincing set-back. As everybody knows, the fundamental Bell patents have expired in Great Britain. In 1893 the same patents will expire in the United States. By reason of certain adverse judicial decisions there exists just across the border, in Canada, a state of affairs which is plainly indicative of what will take place here in 1893. To-day Montreal furnishes the cheapest telephonic service on this continent. The long-established "Bell" company demands only $25 a year for either residential or business houses. The opposition company, the Federal Telephone Company, which brought rates to their present basis, charges $35 a year for business houses and $25 a year for residences. Both concerns are doing a lively business. The local "Bell" company has about 5,000 subscribers in the city, and the opposition company has about 6,500 subscribers. Both organizations use the same apparatus. This reduction in telephone rates not only applies to cities with from 5,000 to 10,000 subscribers, but is also taking place in Berlin, which has even a larger number of subscribers, and also in London, where the rates have been reduced from £15 to £10 per annum. What better evidence than these facts can be adduced to prove that the business can be done, and is being done to-day, in the largest cities of the world, when the patents have become invalid through the expiration of their terms, and that Legislatures in this country will regulate the rates so as to conform to these, in some just proportion, after the patent monopoly on the Bell and Blake apparatus have expired. — *Practical Electricity.*

EQUESTRIAN MONUMENTS.[1]— XXXVII.

THE NAPOLEONS.

Napoleon I. (Bronze Statuette) David, Sculptor.

While Americans were being led by moral causes to seek their liberty, the most repulsive of physical forces were compelling Frenchmen of the middle and lower classes to seek relief from wrongs, from which there was practically no appeal, which the degenerate feudal system had so long showered upon them — at length past all endurance. Between the steadfast and high-minded contest waged by the colonists and the furious and bloody revolt which ended in the establishment of the short-lived first French Republic there are few points of resemblance. In the one case an essentially pure-minded people sought liberty, in the other an oppressed and in many ways a degraded race sought license. Not that the French Revolution did not produce pure and ardent patriots, as Lafayette, Desmoulins, Carnot, Bailly and a host of others, but that the general plane of morality was so low that these men, who were constituted by nature to be safe leaders in a movement whose moral purpose was not wrong, were quickly set aside by leaders more in touch with the base natures of the crowds, undisciplined and uncontrollable, who made Paris, Lyons, Marseilles and the Vendée a very shambles, whose reek still overhangs the name of the French Republican.

The Directory, the Consulate, the Empire followed in rapid succession the overthrow of the Monarchy, with always for a central figure

Marceau. Clesinger, Sculptor.

the most remarkable man that modern history knows. Historians and partisans will never come to an agreement as to whether Napoleon Bonaparte was a demi-god or an arch-fiend. But all must agree that he was the bright particular glory of the most splendid and glorious epoch of French history, and probably neither one party nor the other will ever consent that there shall be displaced from the galleries at Versailles — from the Salle des Maréchaux and elsewhere — the Napolonic subjects which form part of the famous series of paintings which so help to make the study of national history a delightful pastime to French youth.

One thing, at least, Napoleon knew and that was man, and this knowledge enabled him to surround himself with a brilliant throng, the mere mention of whose names is a temptation to writer, painter, sculptor. No inconsiderable number of these famous soldiers have been immortalized by the sculptor and the last of them all will

[1] Continued from No. 795, page 185.

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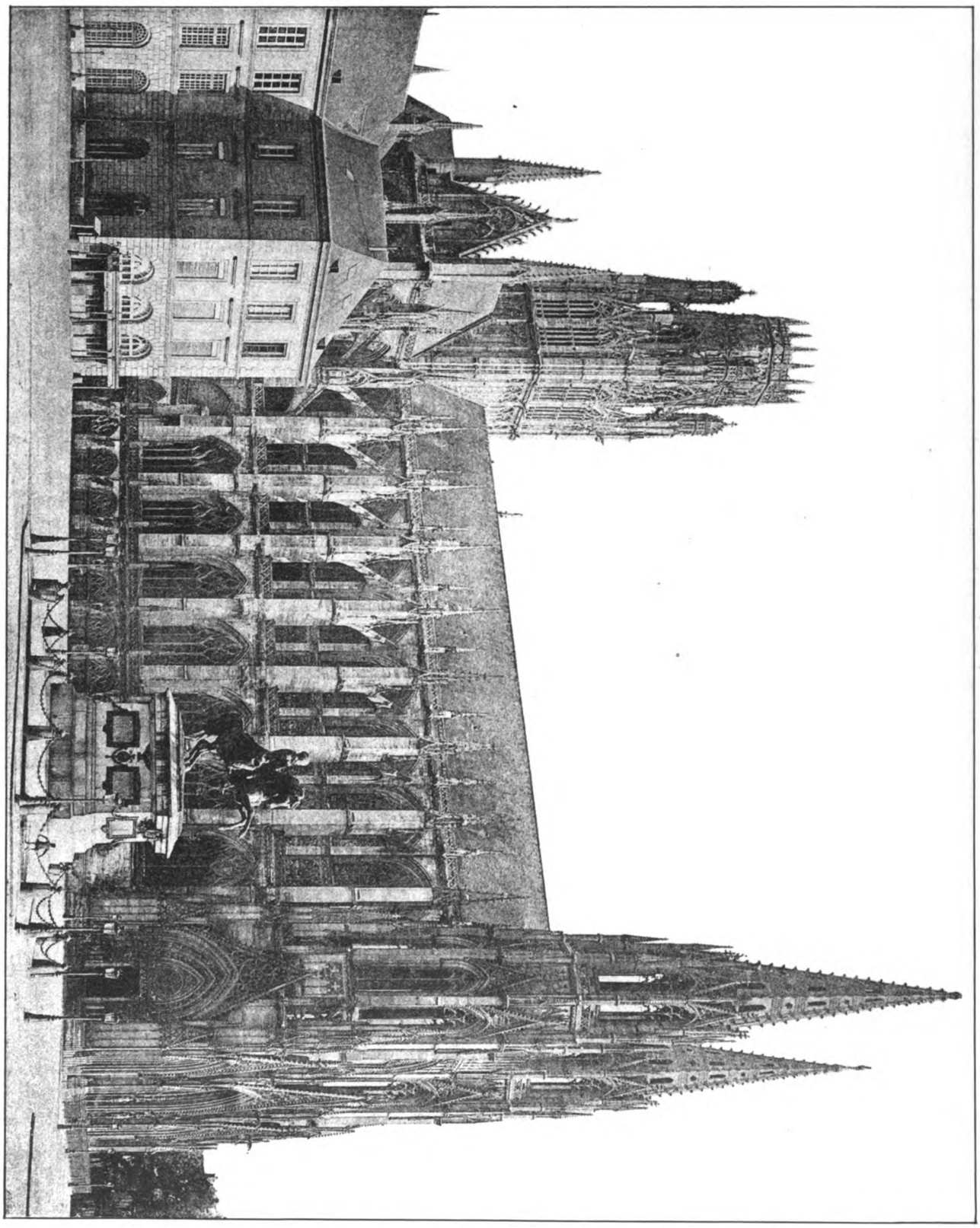

ST. OUEN AND THE STATUE OF NAPOLEON I ROUEN, FRANCE.

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From the North East.

Preliminary Study. For A. Suburban House

For Mr. J. K. Welden. At Binghamton N.Y.

A.W. Reynolds Archt.
Binghamton N.Y.

Heliotype Printing Co Boston

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From the North-west.

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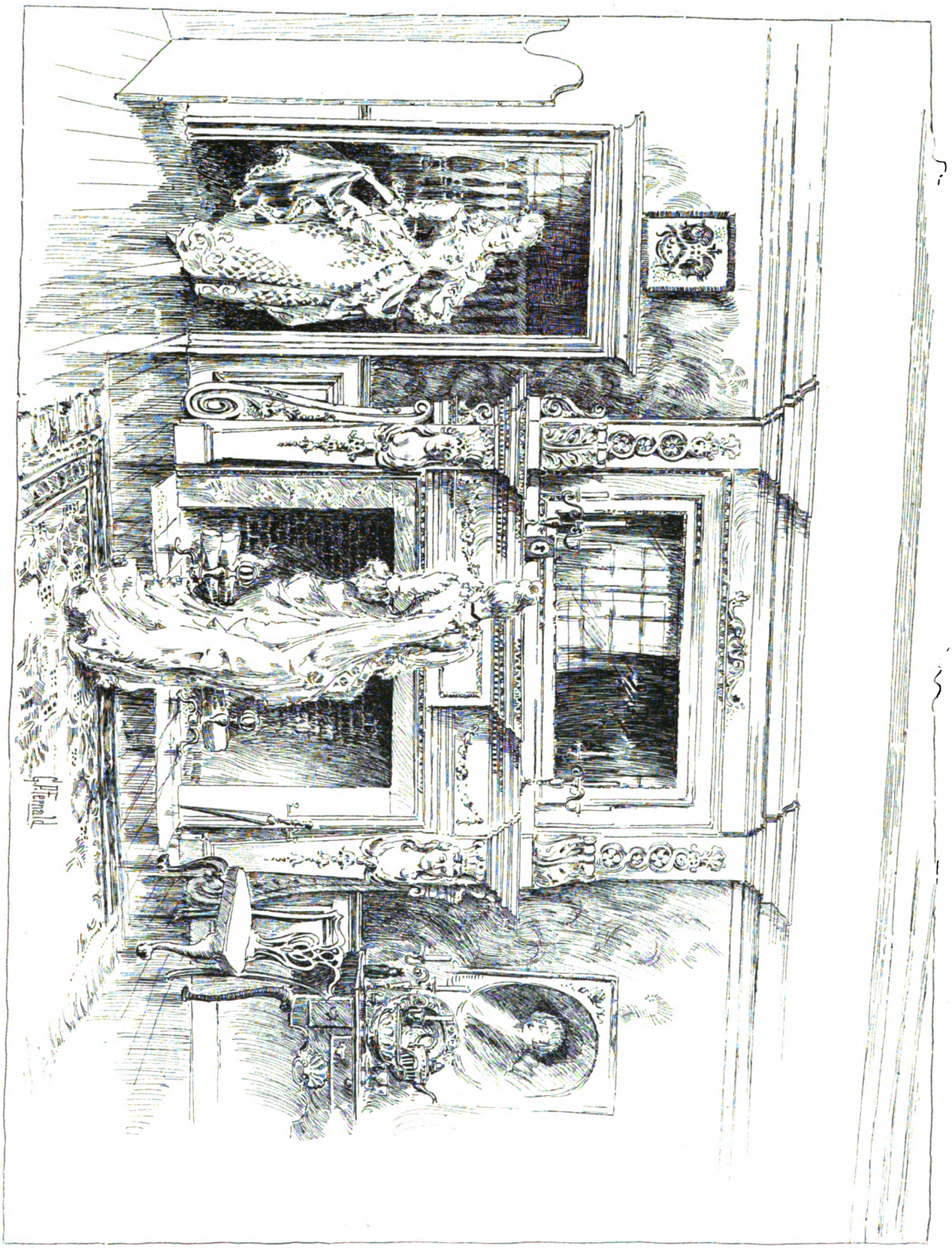

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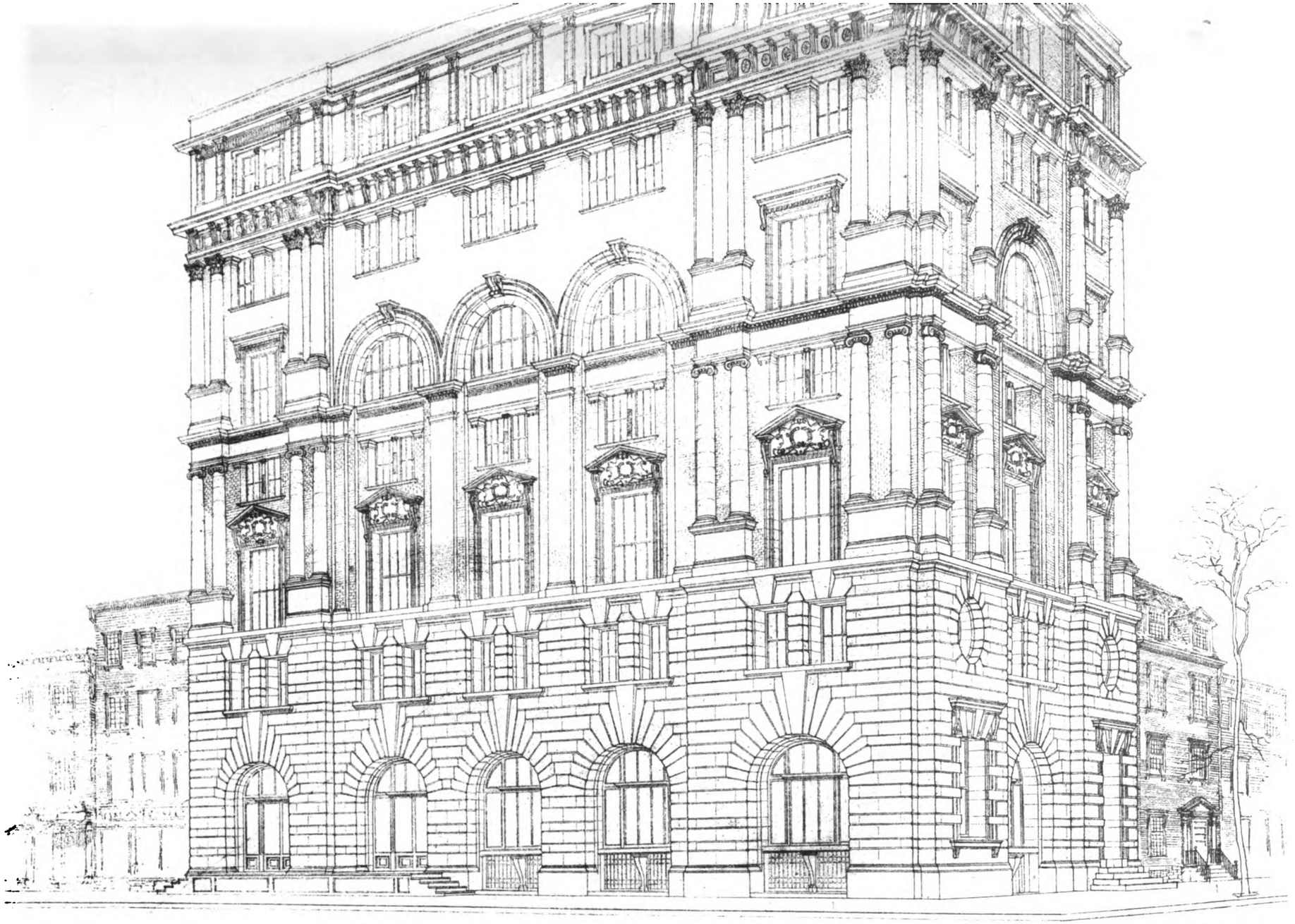

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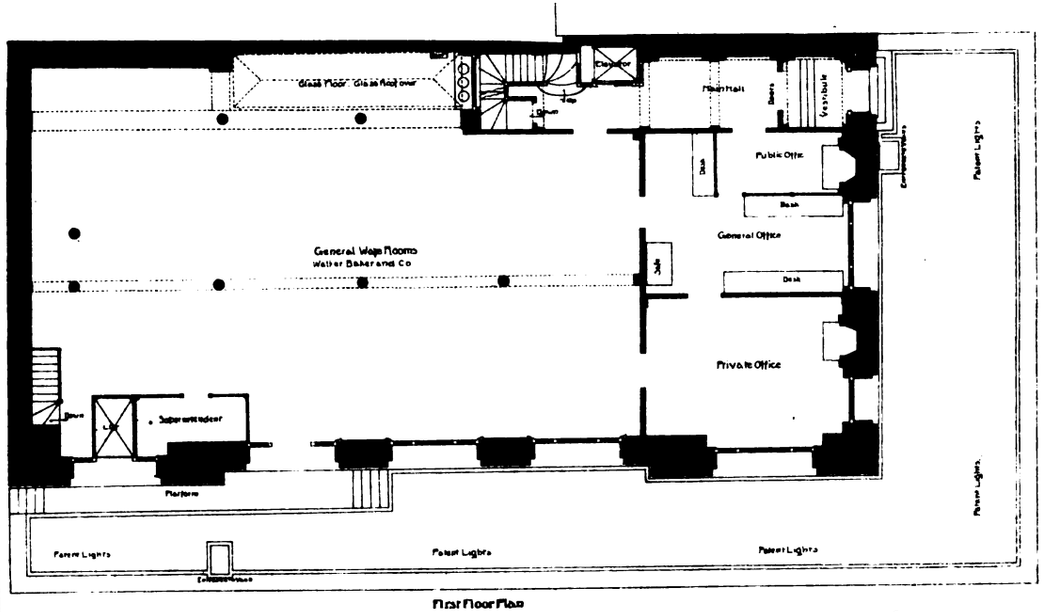
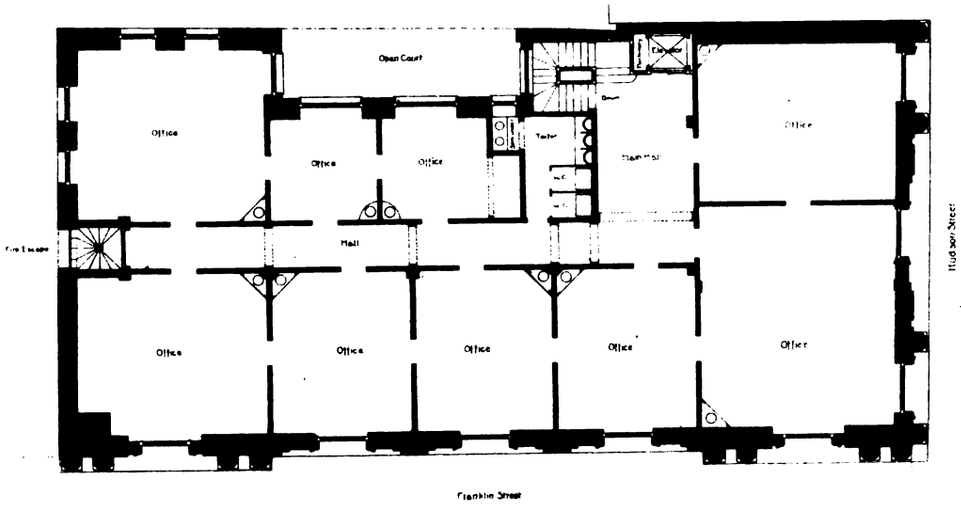
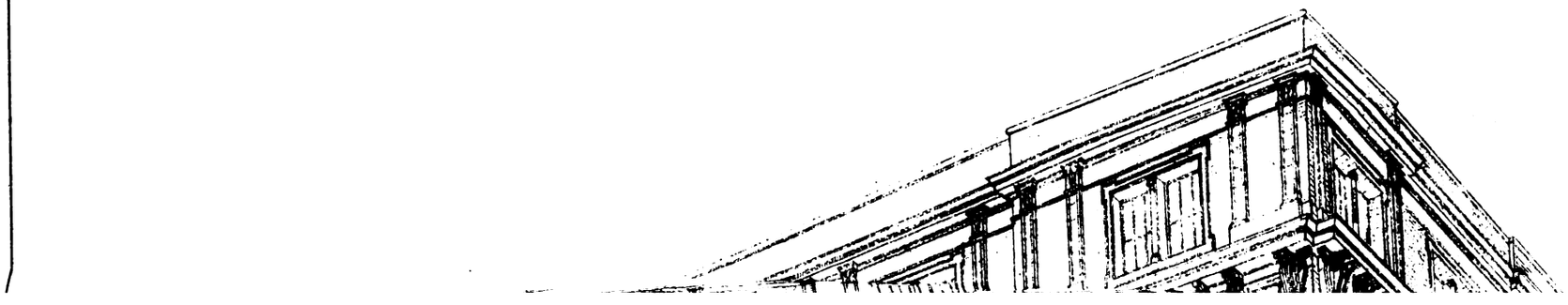


First Floor Plan



3d & 4 Floors.



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probably not be left unhonored, though not all will look down on the beholder from the saddle.

There is not time to go into the details of the histories of David d' Angers's marble equestrian statue of General Gobert on his tomb in the cemetery of Père-Lachaise, Paris; of the two great equestrian figures of Marceau and Kleber which Clésinger made for the École Militaire at St. Cyr, or of the companion figures, Hoche and Carnot, which the sculptor had not time to carry farther than the full-size model. Nor can we stop over the equestrian statue by Fogelbreg erected at Stockholm to the honor of Karl (XIV) Johan once the famous Bernadotte, the only one of the Napoleon-made monarchs who kept his throne (though, really, Bernadotte became king rather in spite of, than because of, Napoleon), nor of the statue of the same famous man at Christiana by Bergslien. And there is still less time to speak of Lemot's unexecuted statue of d'Hautpoul for the Pont de Jena at Paris, of Cartellier's colossal figure of Lannes or the equestrian statuette of Marceau that Le Veel made. If these may not be spoken of at length, still less propriety would there be in halting at the equestrian figure, by Lanz, of General Dufour in front of the Conservatoire de Musique at Geneva, for he only reached the grade of captain while serving in the armies of France and achieved distinction at a much later date. Even the histories, both interesting, of Poniatowski and his statue must be passed over here.

But Napoleon himself is too considerable a figure to be dismissed with a word, and though there is no first-class equestrian statue of the Little Corporal, there are still extant several whose claim upon attention, though it depends rather upon the personality of the subject than upon sculptural merit, must be heeded.

The times were too disturbed during Napoleon's brief career for much to be accomplished in the way of an equestrian portrait during his lifetime — a miniaturist or a portrait painter could hope to complete his work before his nervous sitter was up and off again on

General Dufour, Geneva, Switzerland. Lanz, Sculptor. From *Allgemeine Zeitung*.

another campaign; but the careful plodding sculptor must have more time for his work, and it is not known that Napoleon ever sat for such a statue. It is uncertain what is really the earliest group. Perhaps it is the very inferior and battered bronze statuette recently to be seen in Sypher's store window in New York, a statuette that is signed "David," but whether the painter David, David d'Angers or some other of Solomon's ancestors cannot be told.

The only figure known to have been modelled during the Emperor's lifetime was one undertaken by Canova, who, in 1807, modelled an equestrian group rather more than life size. This, like the pedestrian figure by the same sculptor, at Milan, was conceived in strictly Classic vein and was destined for the City of Naples; but before it was finished Canova received orders to convert it into a likeness of Murat, at that time King of Naples by the grace of Napoleon I, his brother-in-law. But the harlequin career of this statue did not end here; before the sculptor could complete the transmogrification to his satisfaction, Murat had joined the Allies but had not saved his kingdom to his heirs by this act of almost inexcusable apostasy, for another Cæsar reigned in his stead; and when once things had settled the much-puzzled sculptor received orders to behead the effigy of the recently executed King Murat, descendant of a noble line of inn-keepers, and replace it with the likeness of the Bourbon, Charles III. At last finished, the statue stands with its companion, Ferdinand I, in the Piazza Reale in front of the great theatre at Naples.

Next in date to this, probably, is Barye's statuette of the First Consul, modelled in 1838, of which an admirable wood-cut can be found in the *Century* for February, 1886. This, one of Barye's early efforts, is excellent, so far as the rider goes, but the horse shows none of the command over equine graces that this sculptor so often displayed later in life in his many equestrian statuettes. Between this statuette and the small model that, nearly thirty years after,

General Dufour and the Conservatoire de Musique, Geneva.

Barye made for an equestrian statue of Napoleon at a greater age, which it was proposed to erect at Grenoble, there is great resemblance both in the type of horse and the pose both of rider and animal.

The statue actually erected at Grenoble was by Frémiet, and if the account given in a recent issue of this journal[1] is to be implicitly relied on, the commission was won in competition. Yet on the other hand, an autograph letter of Barye's, shown with others at the New York Exhibition of his works in 1889, evidently addressed to some official — perhaps the mayor of Grenoble — expresses the sculptor's renunciation of the task of making an equestrian statue of Napoleon for Grenoble, because his landlord had just turned him out of his studio, and so gives some countenance to the tale that Barye at one time had the commission but abandoned it because the mayor showed a disposition to offer a suggestion or criticism upon the model, At any rate, Barye made only a model while Frémiet actually executed the statue, which was set up in 1867 but had only a brief public existence, for at the downfall of the Empire it was taken down and is now stored in the Garde Meuble at Paris.

Probably the reason why Barye found himself associated with the Grenoble enterprise was because a short time before, on May 15, 1865, there had been set up at Ajaccio on the Island of Corsica, the birth-place of Napoleon, an elaborate monument which was to honor the Bonaparte family and not the Emperor alone; for besides the equestrian figure of the Emperor his four brothers were honored with pedestrian statues. The architectural portion which, besides the pedestal consisted of a platform and two detached exedras, was designed by Viollet-le-Duc, the equestrian figure of Napoleon was modelled by Barye, the figures of Joseph, Lucien, Louis and Jerome being respectively by Millet, Thomas, Petit and Maillet, while the figures of Victory on the exedras are by Vital-Dubray.

The precise character of the monument resulting from the efforts of seven men of marked ability — even genius, it does not seem possible to determine. Few travellers go to Ajaccio and of these few apparently none have been photographers, for search far and near has not brought any photograph of it to light, and the accompanying cut must be but the merest suggestion of the group. It is a pity that this is so for Barye's group is said to have been one of his most successful efforts, the best of his large work. In one thing the Ajaccio monument is peculiar, the figures are all modelled after the Classic manner, thus forming a very peculiar conception for sculptors in the years 1864–1865 to carry out. If the group had been modelled in the days of the Empire itself its Classicism would have been in keeping with the humor of the times, but the only way to explain this reversion from the methods of modern realism is to suppose that the Classic character of the group was a necessary consequence of Barye's taking as his model of the Emperor the toga-clad and leaf-crowned figure which originally surmounted the column in the Place Vendôme. In some such way as this the Classic character of the group must be explained, for it interrupts the tradition which the earlier equestrian statues of Napoleon established.

The earliest of these, which disappeared with the fall of the Second Empire, was set up in the Place Napoleon III, at Lyons, in 1852.

This statue was the work of Count Nieuwerkerke, sculptor, senator and, when Minister of Fine Arts, the steadfast friend of Frémiet, a friendship the more remarkable because untinged with the jealousy that one almost always expects to find one artist entertaining against a more able worker in the same field. It is to be hoped that if this statue still exists it may be again set up, not only as a memorial of its amiable and gifted author but also as a piece of sculpture deserving preservation. Even the over-wrought and elaborate white marble pedestal, the work of the young architect Manguin, with its heavy

[1] See *American Architect* for March 14, 1891.

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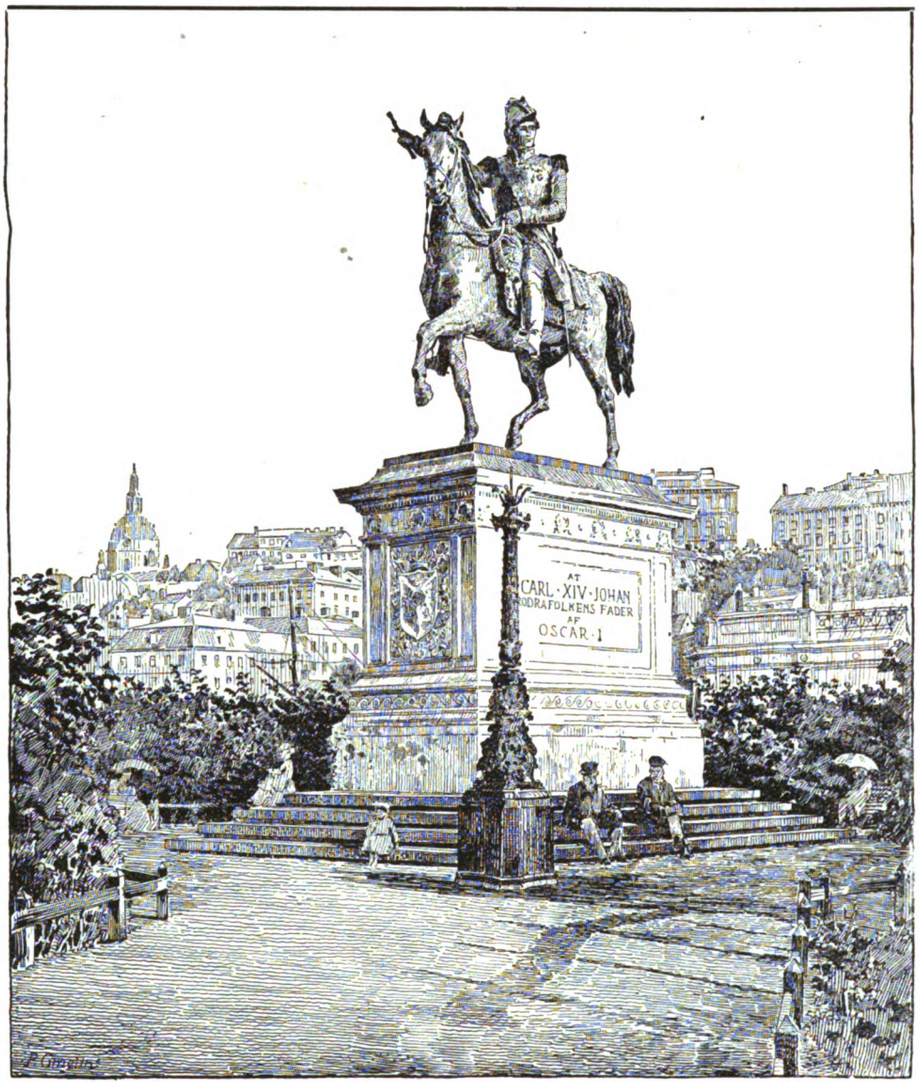
burden of bronze wreaths, eagles and escutcheons, modelled by the sculptor Georges Diebolt, it is a pity to lose.

Why the Napoleonic statues in some places should have been removed in consequence of the events of 1870–71, and in others still remain in place is not easy to determine. Very likely popular feeling varied on this point in different places as, of course, it is well known that some towns and departments are strongly Republican, while others are as stanchly Royalist or Imperialist in their sympathies. Possibly, too, the manner in which the town came into possession of the statue had its effect. A statue erected at the order of the despised nephew of his uncle and paid for out of the privy purse or the public treasury might well be made way with in the belief that its destruction was but a spoiling of the enemy. Where the town bore half the cost of the statue, as at Grenoble, it may have led to a degree of care on the part of the citizens for their own property, a care which safely landed the discarded statue in the unfrequented store-rooms of the Garde Meuble. But where the statue was paid for, out and out, by a public subscription, as at Cherbourg, civic pride and the instinct of safeguarding one's own seem to have been enough to preserve it in undisturbed serenity.

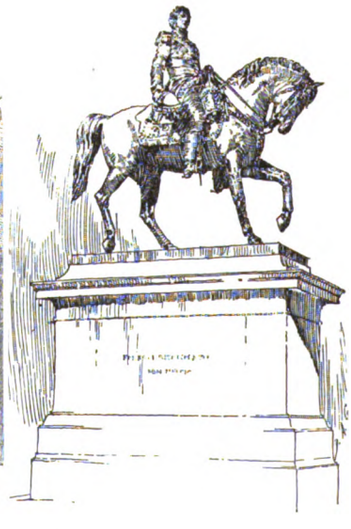


Karl (XIV) Johan (Bernadott,e) Stockholm, Sweden. Fogelberg, Sculptor.

The statue at Cherbourg, by the sculptor Le Veel, has a position, seemingly, than which none could be better. Other statues are placed upon the seacoast or a river's bank, but none is as peculiarly adapted to its position as is this. The quotation inscribed upon the pedestal: "*J'avais resolu de renouveller à Cherbourg les merveilles de l'Egypte*" is said to have reference to the building of the great docks that now make this seaport famous, but it is easy to conceive another meaning in the outstretched finger that points toward England, which by itself alone is enough to recall the Emperor's elaborate preparations to carry out his favorite dream of invading England. To tell the truth, the horse is an impertinence and is a false property to introduce amid this historic setting. The sculptor tells the story as if the emperor, seized with a happy thought, had cantered up to the water's edge, and calling out to the scattered sailors and fishermen told them to jump into their boats pull over to England and bring back the keys of St. James's palace before supper. His group tells the story, but in a pictorial, or rather in a theatrical way, and this is the more provoking because of the judicious selection of the site, which, with the sea outlook from one direction for a background, and from another the interesting old church leaves little to be desired in this respect. Not one of the equestrian statues of Napoleon can be considered adequately satisfactory — unless it may have been the one on the bridge at

Napoleon I, Lyons, France. De Nieuwerkerke, Sculptor.

Napoleon III, Ajaccio, Corsica. Barye, Sculptor. From *L'Illustration.*



Karl (XIV) Johan (Bernadotte) Christiania, Norway. Bergslien, Sculptor.

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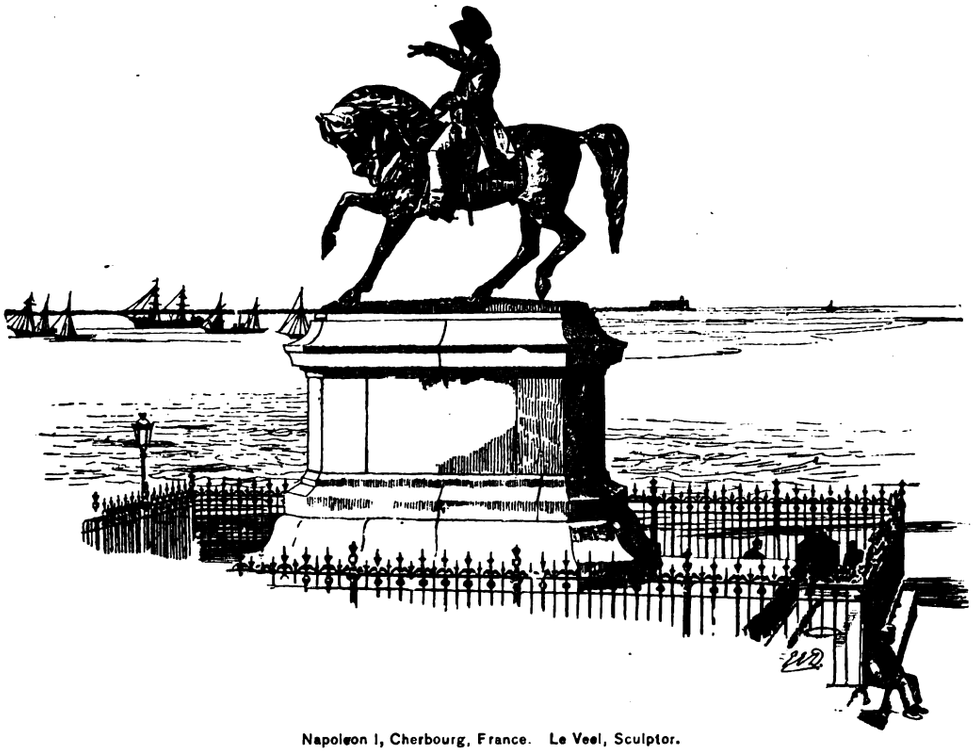
Montereau, of which we can learn absolutely nothing, save that it was modelled by General Pajol, an amateur sculptor. It may be still in place or it may have been destroyed: it probably was not a great work of art or its reputation as such would have caused the record of its history to be entered in many archives.

The fact that another statue which was paid for by public subscription survives unhurt, adds force to the supposition that such a form of ownership is in some sense a guaranty of perpetuity. This statue stands in front of the Hôtel de Ville of the City of Rouen, under the shadow of the great Church of St. Ouen, where it was placed August 15, 1865. Vital-Dubray, the sculptor, who has represented Napoleon bare-headed on a rearing horse, has succeeded no better than the others in the attempt to make a satisfying statue of this unquestionably great man, and until such a statue is erected somewhere in France, the assertion of some critics that the modern school of French sculptors is the greatest that has ever lived and practised may be challenged fairly. Political prejudices will for years probably stand in the way of any attempt to erect a new statue of the great emperor, but it is to be hoped that, if the Republic endures, it will before long find itself able to set aside a mere emotional prejudice and let her most capable artist at length do justice to a great historic fact. The Arc de l'Etoile has as little right to existence, if such prejudice is to prevail, as had the statues at Lyons and Grenoble, but it is doubtful if any one ever suggested its annihilation. Even the bas-relief upon it by Cortot, of which the central figure is the Emperor's, has been restored.



Napoleon I, Cherbourg, France. Le Veel, Sculptor.

These few statues, the unfinished model by Clésinger now stored in the Palais de l'Industrie and the statuette by Odiot, which was in the Exhibition of 1851, complete the list of equestrian portraits of Napoleon I and in number and quality, considering the subject, it appears a singularly meagre and shabby one.

The claims that Napoleon III had upon art were even less distinguished than in the case of the man he asserted to be his uncle. He was a fine horseman, he held the strings of privy and public purse alike with a slack hand, and he had a personal ambition to immortalize himself in every way, yet one must go to Milan to find an extant equestrian statue of the man who accomplished the *coup d'état*. This statue was, of course, a recognition, not of the French pretender to the imperial succession, but to the leader who enabled Northern Italy in part to throw off the oppressive rule of the Austrian. But Louis Napoleon was not a person to inspire very lasting feelings of gratitude, admiration or respect, and this statue, by the sculptor Barzaghi — a colossal figure which represents the emperor as he entered Milan in triumph, in 1859, and not a bad specimen of modern Italian work — has never been placed upon a proper pedestal, but stands in a court-yard of the Palace of the Senate, supported upon a few courses of humble brickwork. The explanation of such a treatment of so good a pictorial statue lies probably in the fear of giving offence to the all-powerful Bismarck which has had such a restraining influence on even the domestic doings of governments who might find themselves accidently converted into foes though really prefering to be allies. Even now, though Bismarck is discredited at home, the Dreibund exists and Italy will hardly substitute a proper pedestal for the brickwork that has, since 1881, kept the base of this statue above the reach of corroding moisture.

The displacing of the Napoleonic statues at the fall of the Second Empire and the loose way in which these events are chronicled leads to a doubt whether certain statements refer to the removal of the statue of Napoleon Bonaparte at Lyons, or to the fate of an equestrian statue of the third Napoleon, the work of the same sculptor, De Nieuwerkerke. It seems probable that there was but one statue and that the confusion was caused by the fact that it stood in the Place Napoleon III. The same confusion exists with reference to the statue, also by De Nieuwerkerke, which is said still to exist at La-Roche-sur-Yon, once Napoléon Vandée, though no illustration of it has yet come to light. The mere fact that it exists, inclines one to the belief that the figure represents the great emperor and not Napoleon the Little, for the latter was so thoroughly hated by large

Napoleon I, Cherbourg, France. Le Veel, Sculptor.

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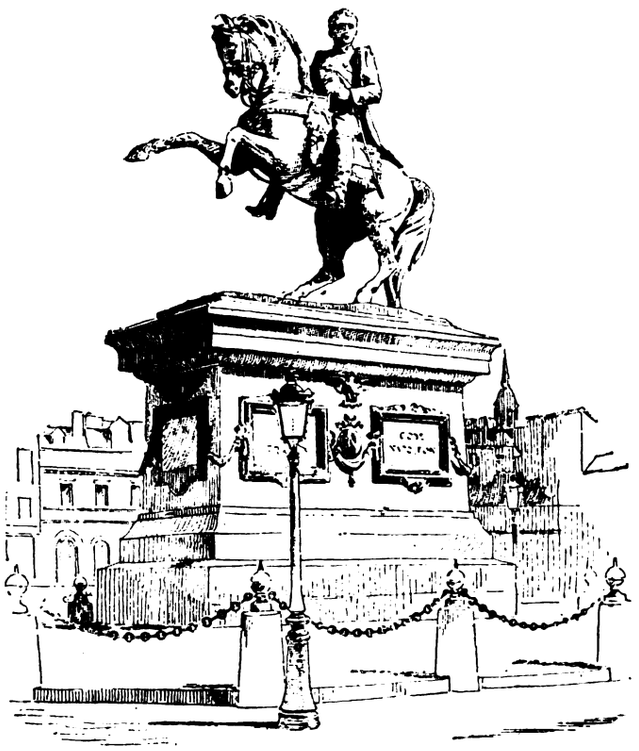
classes of the men he ruled over, that even Barye's bas-relief on the Louvre, fairly inaccessible as its position was, had to be removed,[1] so a more approachable statue could hardly escape the outward effects of the popular condemnation of the original.

At any rate such condemnation was pronounced against J. B. J. Debay's (Jr) equestrian group of Napoleon III, which, after being



Napoleon I, Rouen, France. Vital-Dubray, Sculptor.

exhibited at the *Salon* of 1855, was erected at Bordeaux, April 20, 1858.

If any of these statues are stored in an uninjured condition, they may — if the next war with Germany is more successful than the last — once more see the light in a public place. If, however, the present foes never again come to blows, or if the next war leads to a still further loss of French territory, it seems safe to predict that, however, future generations of Frenchmen, of whatever political complexion, may regard the victor of Austerlitz and statues of him, they will never re-erect any statue that will commemorate the name of the man who lost to France the fair fields and cities of Alsace and Lorraine.

Gobert. — J. N. Gobert, a French general, was born at Guadeloupe in 1770. He was made a sub-lieutenant in 1790, and, distinguishing himself by bravery, rapidly arrived at the rank of general. In 1801, he rendered valuable service in suppressing an insurrection against the French at Bologna. The following year he went with General Leclerc to St. Domingo, and, after his return to Europe, while in Spain, in 1808, was mortally wounded in the combat of Baylen.

Kleber. — Jean Baptiste Kleber, a French general, was born at Strasburg in 1754. He studied at the military school of Munich, but returned to France in 1788, and was soon made an adjutant-major. For his gallant conduct at the siege of Mayence in 1793, he was appointed general of brigade. He gained many laurels at Fleurus, at Mons and at Maestricht, and accompanied Bonaparte to Egypt in 1798. Here he added to his renown in various battles, and, on the return of Napoleon to France in 1799, was made commander-in-chief. While carrying out his plans to make Egypt a valuable colony of France, he was assassinated by a Mohammedan fanatic in 1800.

Marceau. — François Séverin Desgraviers Marceau, a French general, was born at Chartres in 1769. He entered the army in 1786, and was made a general of brigade at the age of twenty-two. In 1793, he obtained the chief command of the army sent against the Vendeans, whom he defeated at Mans. In 1795 and 1796 he gained advantages over the Austrians. He was killed in battle near Altenkirchen in 1796.

Hoche. — Lazare Hoche, a French general, was born at Montreuil in 1768, and entered the French Guards at the age of sixteen. His rise was so speedy that, when only twenty-four, he commanded the army of the Moselle. In 1793 he defeated Wurmser, and in 1795 gained a victory over the Royalists at Quiberon. In 1797, commanding the army of the Sambre and Meuse, he opened the campaign against the Austrians by a daring passage of the Rhine in their presence, and defeated them in several actions. Hoche died, of poison (as was suspected), in 1797.

Carnot. — Lazare Nicolas Marguerite Carnot was born at Nolay, Burgundy, in 1753, and studied at the military school of Mézières, which he quitted in 1773 with the rank of lieutenant of engineers. He espoused with ardor the popular cause, and in 1792 was elected to the National Convention. In August, 1793, he was chosen as one of the committee of public safety, and exercised the functions of war-minister of the Republic with the greatest success for a number of years. He opposed Napoleon's assumption of imperial power. On the restoration of Louis XVIII he was proscribed, and died in exile, in Germany (at Magdeburg), in 1823. He was also distinguished as a man of science.

Lannes. — Jean Lannes, Duke of Montebello, a celebrated marshal of the First Empire, was born at Lectoure in 1769. He was one of the volunteers of 1792, and was rapidly promoted. He was made a colonel for his conduct at Montenotte, and distinguished himself in Egypt and at Montebello and Marengo in 1800. He added to his reputation at Austerlitz, at Jena, at the siege of Saragossa, at Eckmühl and at Ratisbon, but was mortally wounded at the battle of Aspern in 1809.

Dubray. — Gabriel Vital Dubray was born at Paris in 1813, and was a pupil of Ramey. His principal works are the equestrian statue of Napoleon I at Rouen, a statue of the Empress Josephine, now in the gallery of Versailles (a replica being at Martinique); a statue of Pothier at Orleans; one of Joseph Bonaparte at Corte; one of Cardinal Fesch and one of General Abbatucci, both at Ajaccio; one of Jeanne Hachette at Beauvais; and statues of the sculptor Clodion, the poet Jasmin, General Delzons, Napoleon II, Marshal Lannes and Sully. He also produced a number of ideal works and portrait-busts, and executed the two Victories on the exedræ of the monument to Napoleon I at Ajaccio; the Mourning Angel in the chapel of the Christian Cemetery at Canton, China, in memory of the French soldiers killed during that expedition; and the ten bas-reliefs on the pedestal of the statue of Joan of Arc at Orleans.

D'Hautpoul. — Jean Joseph d'Hautpoul, a French general, was born at Salette, Languedoc, in 1754. He entered the service in 1777, and obtained the rank of general for his conduct at the siege of Nimuegen. He was severely wounded at Altenkirchen (1796), and distinguished himself at the battles of Hohenlinden and Austerlitz. He died in 1807 of a wound received a few days before at the battle of Eylau.

Dufour. — Guillaume Henri Dufour was born at Constance, Switzerland, in 1787, and entered the French army in 1809. He served in the Engineers, and attained the rank of captain during the Hundred Days, retiring after the peace that followed Waterloo, and returning to his native land, where from 1819 to 1830 he was chief instructor in the military school of Thoune. Among his distinguished foreign pupils was Prince Louis Napoleon, afterwards Emperor of the French. After receiving numerous promotions, Dufour was appointed in 1847 to the command of the Federal army, and quickly suppressed the rebellion of the Sonderbund, a Catholic faction which had menaced the unity of the Swiss Republic. General Dufour won distinction also as a writer on military science, and executed the great trigonometrical survey of Switzerland, made between 1842 and 1865. He died in 1875.

Poniatowski. — Joseph Antony, Prince Poniatowski, was born at Warsaw in 1762. He was the son of a general in the Austrian service, and nephew of Stanislaus Augustus, King of Poland. He commanded the Polish army in the war against Russia in 1792, and served under Kosciusko in 1794. In 1806 he raised an army of Poles to fight for Napoleon, who had persuaded him that he intended to restore the independence of Poland. He and his army of Poles fought against the Russians in 1807, and opposed the Austrians with success in 1809. He commanded a corps of the grand army which invaded Russia in 1812, and rendered important services in that campaign. On the first day of the Battle of Leipsic, October 16, 1813, he was created a marshal of France, but on the last day of that great struggle, endeavoring, while wounded, to swim his horse across the Elster in retreat, he was drowned. He was called "The Polish Bayard."

Bernadotte. — Karl (XIV) Johan, King of Sweden and Norway, Prince of Ponte-Corvo and Marshal of France, was born at Pau in 1764. He was the son of a lawyer, and his original name was Bernadotte. In 1780 he enlisted as a private in the royal marines, and rose rapidly in the service, until in 1794 he became a general of division. He was afterward made Minister to Vienna, and in 1799 Minister of War at Paris, becoming a Marshal of France in 1804. The next year he joined the grand army which invaded Austria, and maintained his reputation at Austerlitz, and in 1806 gained a decisive victory over the Prussians at Halle. On the death of the Crown Prince of Sweden, Bernadotte, who had gained credit for moderation and humanity during the war between France and Sweden in 1807–8, was elected heir to the throne. This was in August, 1810, and he immediately went to Sweden and became the colleague of Charles XIII in the government. France invading Pomerania in 1812, Sweden made a treaty of alliance with Russia, and in the campaign of 1813 Bernadotte joined the allies in Germany with an army of about 28,000 Swedes. Later, taking command of a larger army designed for the protection of Berlin, he defeated Oudinot at Gross-Beeren and Ney at Dennewitz, and also contributed to the victory of Leipsic. He did not take part in the invasion of France by the allies in 1814, but returned home, and soon effected the conquest of Norway. On the death of the King in February, 1818, Bernadotte succeeded to the throne as Karl (XIV) Johan and reigned until his death, in 1844.

Fogelberg. — Bengt Erland Fogelberg, a celebrated Swedish sculptor, was born at Gottenburg in 1786. He studied at the Academy of Fine Arts in Stockholm, in Paris under Bosio, and at Rome. His works include "Mercury," "Paris," "Achilles Wounded," "Hebe" and "Psyche," with many other ideal subjects; a statue of Birger Jarl at Stockholm, one of Gustavus Adolphus at

Napoleon III, Milan, Italy. Barzaghi, Sculptor.

Gottenburg, and the equestrian monument to Bernadotte in Stockholm. He also executed the lions at the foot of the statue of Charles XIII (by Göthe) in Stockholm. The National Museum there contains marble statues by him of "Thor," "Odin," "Venus Triumphant," "Apollo Citharoedus" and Karl XIII in his coronation robes. Fogelberg died in Trieste in 1854.

[1] See the *American Architect* for April 13, 1889.

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LANZ. — Alfred Lanz was born at Chaux-de-Fonds, Switzerland, and studied under Cavelier in Paris. His works include the monument to Pestalozzi in Yverdon; the equestrian statue to General Dufour in Geneva; an "Excelsior" for the monument to the L—— family, and a bust of Emile Welti, President of the Swiss Confederation. Lanz received an "Honorable Mention" for his model for the monument to General Lee in Richmond, Va., exhibited at the competition in Washington in 1886.

NAPOLEON I. — Napoleon Bonaparte, born at Ajaccio, Corsica, August 15, 1769; educated in France, and entered the army of the Republic; took Toulon, 1793; commander-in-chief, 1795; campaign of Italy, 1796; expedition to Egypt, 1798; First Consul, 1799; second campaign in Italy, 1800; Emperor of the French, 1804; crushed Austria, 1805, Prussia, 1806; occupied Spain, 1807; invaded Russia, 1812; campaign in Germany and "War of Liberation," 1813; occupation of Paris by the allies, March 13, 1814; abdicated and retired to Elba; returned to France, March 1, 1815; battle of Waterloo, June 18, 1815; abdicated again June 22; banished to St. Helena, where he died May 5, 1821.

BARYE. — Antoine Louis Barye was born in Paris, 1796. He studied under the engraver, Fourier, and then became a pupil of Bosio and Gros. He first exhibited at the *Salon* in 1827, and won his earliest medal in 1831. For twenty years before his death he was professor of drawing and modelling at the Museum of the Jardin des Plantes in Paris. He died in 1875. His most important works are the "Lion crushing a Serpent," in the Tuileries Garden; the "Jaguar devouring a Hare," now (with other of his sculptures) in the Luxembourg; the equestrian statue of Napoleon I at Ajaccio; the groups of War, Peace, Force and Order on the pavilion of the new Louvre; the Lion on the Column of July in the Place de la Bastille, and the two seated Lions of the Tuileries. Among the numerous smaller sculptures of Barye may be mentioned "Theseus slaying the Minotaur" and "Theseus slaying the Centaur"; "Roger and Angelica"; the hunting groups made for the Duke of Orleans; the "Tiger devouring a Crocodile"; the candelabrum designed for the Duc de Montpensier; and equestrian statuettes of Napoleon I, Charles VI, Charles VII, the Duke of Orleans, Gaston de Foix, a Tartar warrior, and a lady in the riding-dress of 1830. He modelled an equestrian relief of Napoleon III for the Louvre (since removed); and four large groups of animals at the Château d'Eau at Marseilles.

PAJOL. — General Charles Pierre Victor, Count Pajol, was born at Paris in 1812, and was the son of General Pajol. He served with distinction in Algeria, the Crimea and Italy and during the Franco-Prussian War. He executed several works in sculpture, among them a monument to his father (whose life he has also written) at Besançon; a bust of General Bailly de Monthion for the monument in the Island of Reunion; and an equestrian statue of Napoleon I at Montereau, the distinguished services of his father in the battle which took place there in 1814 having been specially recognized by the Emperor. Pajol died in 1891.

NAPOLEON III. — Son of Louis Bonaparte and Hortense de Beauharnais, was born at Paris, April 20, 1808, and was registered at the head of the family in preference to the children of the older brothers of Napoleon I. He made an attempt to proclaim himself emperor and take possession of the citadel of Strasburg in 1836, and was banished to the United States, but returned to Europe in 1837. He was arrested at Boulogne, 1840; escaped from Ham, 1846; a member of the French Assembly, 1848; elected President of the Republic in December of that year; effected the *coup d'état*, December 2, 1851, and became Emperor in November, 1852. He declared war against Russia in 1854, against Austria in 1859, against Mexico in 1862, against Prussia in July, 1870; surrendered at Sedan the following September, and afterwards retired to England, where he died January 9, 1873.

BARZAGHI. — Francesco Barzaghi was born in Milan in 1839, and studied at the Academy of that city. His works include the equestrian statue of Napoleon III at Milan; a statue of Dom Pedro at Lisbon; "Hercules strangling Antæus"; "Presentation of the Child Moses"; "Blind Man's Buff"; "Phryne" and "Vanity."

[To be continued.]

ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

DOORWAY TO HOUSE OF MRS. OLIVER DITSON, COMMONWEALTH AVENUE, BOSTON, MASS. MESSRS. ROTCH & TILDEN, ARCHITECTS, BOSTON, MASS.

[Helio-chrome, issued with the International and Imperial Editions only.]

PIERCE BUILDING, CORNER FRANKLIN AND HUDSON STREETS, NEW YORK, N. Y. MESSRS. CARRERE & HASTINGS, ARCHITECTS, NEW YORK, N. Y.

HOUSE FOR J. K. WELDEN, ESQ., BINGHAMTON, N. Y. MR. A. W. REYNOLDS, ARCHITECT, BINGHAMTON, N. Y.

ST. OUEN, ROUEN, FRANCE, AND VITAL-DUBRAY'S STATUE OF NAPOLEON BONAPARTE.

SEE article on "Equestrian Monuments" elsewhere in this issue.

MANTEL IN THE OLD GOVERNOR WENTWORTH HOUSE, PORTSMOUTH, N. H.

[Additional Illustrations in the International Edition.]

DETAILS FROM THE IMPERIAL MUSEUM, LEIPSIC, SAXONY. HERR T. UNGER, SCULPTOR.

[Gelatine Print.]

DOORWAY OF THE NEW YORK LIFE INSURANCE BUILDING, MONTREAL, CANADA. MESSRS. BABB, COOK & WILLARD, ARCHITECTS, NEW YORK, N. Y.

[Copper-plate Etching.]

DOORWAY FROM THE EAST CHAPEL TO THE VESTIBULE OF THE PRIESTS' QUARTERS, MONREALE CATHEDRAL.

[Gelatine Print.]

LIKE others of this series this subject is reversed in printing. The reversion is, however, quite immaterial except for those who may desire to decipher the Latin inscription on the door lintel, and even such persons will find the task made simple by using a mirror.

WINDOW OVER VESTRY DOOR, TROYES, FRANCE. DRAWN BY MR. D. BLOW.

ABBEY HOTEL, KENILWORTH, ENG. MESSRS. ESSEX & NICOL, ARCHITECTS, BIRMINGHAM, ENG.

THE illustration shows the new assembly-room, with suites of rooms over, facing the tennis and bowling lawns and ornamental gardens lately added to this hotel. It was partly built in 1885. The place as now completed is a very convenient one. It contains large public dining, smoking and billiard rooms on the ground-floor, and suites of private sitting-rooms and bedrooms on the upper floors. The windows of the principal rooms command excellent views of the historical ruins of Kenilworth Castle and Monastery.

SOCIETIES

ENGINEERING ASSOCIATION OF THE SOUTH.

THE regular monthly meeting of the Engineering Association of the South was held at the Y. M. C. A. Building, Nashville, Tenn., on the evening of April 9, 1891, with first Vice-president W. L. Dudley presiding, and about twenty-five members and visitors present.

The death of Mr. H. S. Butler of Anniston, Ala., was announced to the Association, and Messrs. R. C. Lewis, Nashville, Tenn., W. H. Spradlin, Gallatin, Tenn., and Mr. W. M. Newbold, Birmingham, Ala., were appointed a committee to prepare a biographical sketch of the life of Mr. Butler.

The following resolutions relative to the forthcoming annual convention of the American Society of Civil Engineers were adopted.

Resolved, That the Engineering Association of the South has learned with gratification of the selection of Lookout Mountain, Tenn., as the place of the meeting of the forthcoming annual convention of the American Society of Civil Engineers which is to convene May 20, 1891, and that it extends to the American Society a hearty welcome to the South.

Resolved further, That the American Society of Civil Engineers be invited to include the city of Nashville, the headquarters of the Association, in its route to or from Lookout Mountain and if practicable to hold one session of the convention in Nashville.

On motion the Chairman was empowered to appoint a committee of five to carry out the wishes of the Association in the matter of courtesies to be extended to the American Society of Civil Engineers, which committee was authorized to place itself in communication with the Committee of Arrangements of the American Society of Civil Engineers and learn their wishes.

The paper of the evening entitled "The Engineering Profession," was then presented by Maj. W. F. Foster of Nashville. The paper treated the subject under three heads: First, the relation of the members of the engineering profession to one another. Second, the relation of engineers to their clients. Third, the relation of engineers to thegeneral public. The writer held that engineers in charge of work should take a greater interest in the welfare and professional advancement of their subordinates and that a spirit of mutual aid and good faith should be characteristic of the intercourse between engineers rather than one of professional reserve and criticism. No tolerance should be shown to pretenders or charlatans for whose exclusion it was suggested that it might become desirable to inaugurate a system of State examinations and licenses. Maj. Foster spoke strongly on the importance of engineers maintaining their true status as arbitrators between their clients and their contractors, and not simply act as the agents of their clients; it would be disgraceful for an engineer to receive a bribe from a contractor as an inducement to accept inferior work; it would be equally dishonorable that he should allow his salary to be the bribe to do injustice to the contractor in the interest of his employer. The writer was of the opinion that while not generally desirable or proper, still in certain cases under certain conditions and clearly-defined stipulations, professional work might be undertaken for a fixed compensation regardless of the time or the difficulties to be encountered.

The practice, however, of bidding for engineering work was held to be all wrong in theory and bad in effect, undignified and unprofessional, and a practice to be discouraged as lowering the high standard of the profession.

The paper will be published by the Association.

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COMMUNICATIONS

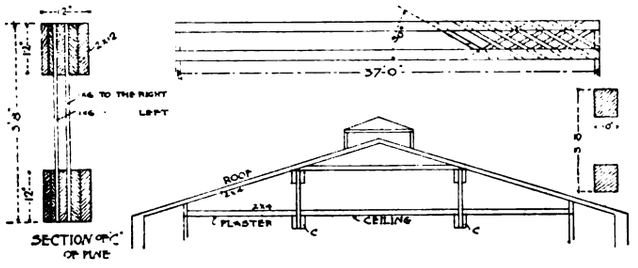
[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

A WEAK TRUSS.

April 14, 1891.

To the Editors of the American Architect: —

Dear Sirs, — I have tried to make the sketch a little clearer; had I more time I would send you a regular sketch to scale, but hope you will have no trouble in grasping the above. The girders "C" have



settled and it is a subject of dispute as to who is to blame for it, the contractor or designer.

The capacity of girders to carry their load was found by means of bending-moment $\left(\frac{wl}{8}\right)$ and the moment of resistance of section, but the deflection was not figured for the specification called for bolts in chords about four feet apart.

Hoping to see the reply in the *American Architect*,

I remain, "Trautwine."

[The truss would have been better with the lattice web members nearer together and inclined at 45° instead of 30°. With board struts, there will always be some effect from shrinking, bending of the spikes or nails, splitting of the boards, etc., which can hardly be calculated from a deflection formula, but will show themselves by settlement under a heavy snow load; and this effect is greatly increased, as a moment's reflection will show, by diminishing the angle of the struts with the horizon. Whether the contractor or designer is responsible for the settlement in this case it would be impossible to say. Of course, imperfect execution might result in settlement of a truss perfectly designed; and the truss as shown might, with proper execution, resist any load that could come upon it, but we think it might have been improved in the way we mention. — Eds. American Architect.]

EXHIBITION OF CARVED INCRUSTED CAPITALS.

Boston, April 21, 1891.

To the Editors of the American Architect: —

Dear Sirs, — It may be interesting to architectural students of this city, to know that I have had six capitals carved in white marble, not from this fact only, but from the fact that they are faithful reproductions, as far as possible, of the incrusted style of Byzantine work, and selected from what I consider "gems" of Byzantine art. Two of them are of the lower and upper orders of S. Vitale, of Ravenna, also found in San Marco, and the third, from a capital in the Belles Arts, Ravenna.

These capitals may be seen in a shop at the corner of East Canton and Albany Streets (northwest corner) Saturday afternoon — where I will be at 3 P. M. — and be pleased to explain, to those who come to see them, the early manner of carving such work.

Yours truly, John Lyman Faxon.

PICTURE-MAKING WITH PEN-AND-INK.

Fall River, Mass., April 21, 1891.

To the Editors of the American Architect: —

Dear Sirs, — Please furnish me with the name and address of publisher of "*Picture-making with Pen-and-Ink*," by Linfoot, and oblige,

Yours truly, Edward P. Waters.

[We believe that Mr. B. Linfoot (719 Walnut St., Philadelphia) is his own publisher. — Eds. American Architect.]

BALLOONS.

Seattle, Wash., April 13, 1891.

To the Editors of the American Architect: —

Dear Sirs, — Would you kindly let us know if there is a manufactory of silk balloons in the States, where we could get a balloon made to drawings and specifications.

Yours respectfully, Evers & Keith.

[We believe that Prof. Ezra S. Allen, 20 Hylestead Street, Providence, R. I., makes the balloons for his own ascensions, so perhaps he makes them for other people. — Eds. American Architect.]

NOTES AND CLIPPINGS

Scented Mortar. — When the Mosque of St. Sophia in Constantinople was built, more than 1,000 years ago, the stones and brick were laid in mortar, mixed with a solution of musk, and the building has been infected with the odor ever since. — *The Brickmaker.*

Wood-paving the Thames Embankment. — At the meeting of the London County Council on Tuesday the following report of the Highways Committee was adopted: "We have, in connection with the question of the future maintenance of the Victoria Embankment carriageway, considered whether, having regard to the large cost, amounting last year to about £3,100, of remetalling, it would not be advisable to adopt some less expensive surface for the road. We have received from the engineer a report, stating that the annual cost of maintenance of the existing carriageway is 2*s.* 1*d.* per square yard, while the annual cost of wood-paving for the same area would probably amount to only about 1*s.* 11 1-4*d.* per square yard, including the provision of a sinking fund to repay the cost of the wood in eight years, and of the concrete foundation in thirty years. He further states that when the cost of the foundation shall have been repaid, the cost of maintenance per square yard per year will be reduced by 2 1-2*d.*, and that in his opinion the adoption of wood-paving would result in a present saving of £500 per annum in this item. The superficial area of the carriageway of the embankment amounts to 54,500 square yards, equal to a length of four miles of an ordinary 40-foot road, and the engineer estimates that the cost of wood pavement for this area would be about £28,250. He further suggests that if the wood-paving be adopted, the work of laying it should be carried out in three sections in three successive years, in order to avoid, as far as possible, a prolonged interference with the traffic, both in the first laying of the pavement and in the execution of repairs, which may become necessary thereafter. Having fully considered these statements and estimates which have been laid before us of the cost of macadam as against other kinds of road material, we have come to the conclusion that it is advisable that wood pavement should be laid on the carriageway of the embankment; and we recommend that, subject to an estimate being submitted by the Finance Committee as required by the statute, the carriageway of the Victoria Embankment be paved with wood, at an estimated cost of £28,250; that the repayment of the cost of the wood be spread over a period of eight years, and of the concrete foundation over thirty years; that the work be carried out in three sections in three successive years; and that it be referred to the Highways Committee to prepare a specification, and to make arrangements for the execution of the works." — *Timber Trades Journal.*

TRADE SURVEYS

Among the unsettling influences in the commercial and financial world may be mentioned these: the continued inability of small traders throughout the interior to make prompt settlements; the insufficient supply of currency from financial centres; the heavy exportation of gold, and the evident insufficiency of the circulating medium to meet the requirements of business. Among the favorable influences at work are the growing necessities in business channels; the rock-bottom condition of prices; the willingness of lenders to lend to the extent of their ability; the absence of accumulating stocks of manufacturing products and raw material; the solvent condition of the great body of manufacturing and business interests, and the natural expansion of demand for all kinds of products. One of the things which is not understood, and to which very little of the right kind of attention is being paid, is the degree of scarcity of money. The conservative and old-time view is that there is enough, and that these recurring stringencies are natural and right, and that the best interests of the country can be subserved only through a continuance of existing conditions. Those who think so strongly oppose any and all schemes for an enlargement of the currency, and prove, from their standpoint, that the views they entertain are in accordance with an harmonious development of energies. The question as to whether the policy of a minimum volume of currency is correct will, as has been previously stated, be discussed before the whole body of the people. The movement has already taken shape in the West under auspices which show that the discussion will not be one-sided, nor confined to one section of the country. In commercial circles, there is more or less disquietude over the hampered expansion of business. In retail channels there has been a fair distribution of goods, but within the last week or two agents of many large houses in New York and Philadelphia, and doubtless in other cities, have sent home reports that retailers are not maintaining that steady and heavy distribution they did earlier in the season. Scattering reports of this kind may not represent actual trade conditions throughout the country, but, so far as they go, they indicate that the retailers and the consumers, at least, are beginning to feel a stringency which, six months ago, began at the top, so to speak, among the large banking houses of Europe. The checking up which has been done in every department of activity during the past six months has, in reality, done more to strengthen confidence than to weaken confidence; it proves that there is a certain automatic action in trade and business affairs, by which evil or dangerous tendencies may be checked or averted. There have been remarkably few failures, considering the enormous risks run. We are now in sight of a heavy crop, and an excellent foreign market for the same. Manufacturers in many avenues see what they regard as excellent prospects for a rapid and immediate expansion of the export trade. The industries at large are thriving, even though capacity is not taxed. Business men, as a mass, are able to pay what they owe, and hence it is that a scarcity of money such as the country has experienced for the past few months is not followed by such disastrous results as followed monetary stringencies fifteen to thirty years ago. The country at large is solvent, and, as production is organized, there is a minimum of danger from those evils which in years past have brought about destructive depressions to capital as well as to labor.

S. J. Parkhill & Co., Printers, Boston.

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TRADE SURVEYS. 76

ALL the older members of the American Institute of Architects will hear with great regret of the death of Mr. Oliver P. Hatfield of New York, which occurred last week, just as our edition was in the hands of the binders. Mr. Hatfield, who had attained the age of seventy-two, was one of the most honored architects in New York. It must be nearly half a century since he went into business with his brother, the late R. G. Hatfield, under the firm name of R. G. & O. P. Hatfield. At that time, architecture was much less of a fine art than it is now, and the Hatfields found themselves led by inclination to the scientific and practical side of the profession, in which they soon gained a wide reputation. Mr. R. G. Hatfield. early in his career, wrote a book of extraordinary merit for the period at which it was published, containing rules deduced from experiments of his own, as well as those which had been made by Tredgold and Rondelet in England and France, accompanied by an immense amount of practical information. This book, under the name of the "*American House Carpenter*," passed through many editions, and is still popular and useful. Another valuable work of the Hatfields was the invention of what is universally known as the Hatfield Sheave, although the patent expired long ago, and the principle of it is used by a score of manufacturers. In the Hatfield Sheave, which was devised to meet the want of a frictionless roller for sliding-doors, the pin, or axle, of the sheave runs in a slot in the frame, the length of which bears nearly the same proportion to the diameter of the pin that the length of the track bears to the diameter of the sheave. Hence, while the sheave is rolling through a distance of perhaps a yard, the pin rolls an inch and a half in its slot, and there is no perceptible friction or wear anywhere, while the whole affair is very cheap. This apparatus was, we believe, patented in the name of R. G. Hatfield, but the thoughtful ingenuity which devised it was shared by both the brothers. Without taking a great part in original building, although New York owes to them some fine structures, the firm became widely known as experts and consulting architects, and were constantly called upon by their fellows in the profession, to whom thay gave admirable advice, and skilful service. Mr. R. G. Hatfield was almost the first, if not the very first Treasurer of the American Institute of Architects, and held that post until his death, when he was succeeded by Mr. O. P. Hatfield, who retained the office, by repeated re-election, until the consolidation of the Institute with the Western Association made it advisable to remove the business offices of the new body to Chicago. Personally, Mr. O. P. Hatfield, like his elder brother, was quiet, thoughtful, of measured speech, and considerate, but precise in action. Although the brilliancy of our modern makers of picturesque architecture has cast a little into the shade the steady-going old offices which date from before the war, it has not totally obscured them, and some of the same brilliant artists will be the first to acknowledge with gratitude the kindness with which the Hatfields labored for years, by evening lectures and experiments, to instruct the New York students and draughtsmen in the rudiments of building construction.

HENRI MICHEL ANTOINE CHAPU, one of the greatest of French sculptors, died last week at Saint-Germain. Chapu was born at Mée in 1833, and studied under Pradier and Duret. He gained the Prize of Rome in 1855, and has ever since been prominent as an artist. His works are very numerous. One of the best known in this country, from innumerable photographs and drawings, is the Regnault monument in the School of Fine Arts in Paris; but this is by no means the most important. His "Mercury," exhibited in 1863, was purchased by the French Government, and is now at the Luxembourg, and he was the sculptor of the great monument to M. Schneider at Le Creusot. He was an officer of the Legion of Honor, and had obtained many distinguished honors.

IT will be remembered that a Commission was appointed by the French Government, some time ago, to inquire whether it was advisable to restrict the practice of architecture to persons provided with a diploma, or certificate of attainment, to be secured by means of a competitive examination, or in some other way. The Commission was composed of the most distinguished men in and out of the profession of architecture. The President was M. Gustave Larroumet, Government Director of Fine Arts; M. Charles Garnier and M. Bailly were Vice-presidents, and among the members were the Presidents of nearly all the great professional societies. The two Secretaries were M. Roussi, the Vice-president of the Society of "Architectes Diplomés," and M. Jules Perin, a lawyer of high repute among architects; and, at the close of the meetings, M. Achille Hermant, the well-known Architect to the City of Paris, was chosen to prepare the report of the Commission, a duty which he discharged with exemplary earnestness. Although some of the French technical journals were rather impatient at the failure of the Commission to devise a scheme by which all pretenders should infallibly be kept out of the practice of architecture, there seems to be no doubt that they discussed the question with a sincere desire to find a practicable plan of the kind, and that they abandoned the effort only after extensive inquiry and long discussion had satisfied them that it was useless. M. Hermant, speaking for the Commission, does not attempt to conceal the evils which arise from the unrestricted license given to any man in France to practise architecture. In the provinces, particularly, a great deal of architectural work among the French is done, to the detriment of owners, as well as of the real architects, by bankrupt bricklayers, building surveyors, decorators, bric-à-brac dealers and charlatans of all kinds, who, it must be remembered, cannot be distinguished by their names from men profoundly versed in the most difficult of all professions, and, owing to their impudence, which they generally possess in inverse ratio to their scientific and artistic capacity, thrust themselves into all sorts of professional employment, particularly into public work, of which, as M. Hermant says, they do, in the provinces, the greater part. Of the way in which they do it, there are amusing stories enough, but, as with us, many of them possess a political "pull" which makes them sure of employment and countenance, whatever blunders they may be guilty of; while the dishonesty and corruption by which they enrich themselves at the expense of their confiding clients are generally unsuspected by any except experienced architects, who, however, dislike to call public attention to the malpractices by which they themselves are the worst sufferers. At first thought, it would certainly seem that the restriction of architectural practice to persons known to be properly qualified for it would be the simplest and best way of escape, both for the profession and the public, from the tricks and blunders of ignorant charlatans; but the Commission, after long deliberation, has come to the opposite conclusion. It approves the principle of visibly separating architects from pretenders, but believes that the best way to do so is by voluntary association of the real

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architects in societies, and not by Government interference; and, above all, it believes that the public may, and should, be taught to distinguish between good architecture and bad, and to value accordingly those who produce the former, by the more general teaching of the rudiments of architecture in schools. In pursuance of this idea, the Commission investigated all the schools in France and Algeria in which architecture is taught. In a few towns a tolerably complete course is given, but in most architecture is taught as it is in high-schools here, by a little history of styles and a little drawing, and hardly anything more. All this is well enough, but much more is needed. Some of the schools give four years to the course, and others three, and the instruction should be made suitable to the importance of the subject, not as a matter of mere accomplishment, but as a serious professional study. As a reward for the successful completion of such a course, a scholastic diploma might, it seems to the Commission, be useful, and, with its aid, and the development of the curriculum leading to it into such a training as a thorough professional school can give, the Commission thinks that the public discrimination in matters of architecture might be greatly improved, and a large number of young men might be properly educated for an honorable profession, from which they are now cut off by the difficulty and expense of a course at the great architectural schools, without invoking the interference of the Government with actual practice. To the same conclusion, we are sure, many people would come from a consideration of the circumstances which exist in this country. As in France, the profession suffers much from the competition of ignorant and incompetent, but impudent pretenders, and, like the French, our architects in many States are now demanding the licensing of all persons who wish to practise the profession after suitable examination. Whether, in any State, the demand will be acceded to is doubtful, but it is worth remembering that the establishment of new centres of architectural education will tend to the result desired, with much incidental advantage in other ways, and State legislatures could easily be persuaded, if a little rivalry should arise among them, to spend money for local schools of architecture, where a proposition to examine and license architects in actual practice would not be entertained for a moment.

A CURIOUS accident took place not long ago at the Shoreham Hotel, in Washington, a handsome building, owned by Vice-president Morton. The main staircase, which is of so-called "fireproof" construction, had landings laid with timbers, between iron beams, and the space between the timbers filled with mortar. This is, at best, a doubtful method of building, and, although the structure is only a few years old, the timbers are said to have begun to rot. On the day of the accident, some workmen, who were making repairs in the ceiling over the upper landing, set a trestle on the upper landing, and, according to the newspapers, tried to raise a part of the ceiling with wedges or jack-screws. The landing, which was never intended for such a purpose, gave way, falling upon the one beneath it, and carrying away that also; and so on, until six landings had fallen together to the bottom of the stairway. As no one was on the landings, and the area of the catastrophe was very limited, no person was injured.

THE question of the opening of the Metropolitan Museum of Art in New York on Sundays is again under discussion, and there seems to be some prospect that a way will be found for having it open to the public at least part of the day. It is understood that the Trustees recognize the advantage to the community of providing a place where people who do not care to go to church can improve their minds on their only leisure day, but there is, we believe, a question whether a part of the endowment of the Museum was not given under conditions which presume the closing of the galleries on Sunday; and, if it should be finally decided that they can be opened, there will be a considerable expense for an extra staff of attendants, which some one must pay.

IN Boston, where such a thing has long been greatly needed, an effort, which promises success, is being made to secure a Zoölogical Garden, on an important scale. The city, which can now dispose of space in a very extensive system of parks, has promised to give the use of the necessary land, if money can be raised for erecting the buildings, and for stocking the Garden with animals; and the Natural History Society, which has long maintained a fine collection of stuffed animals, and illustrations of comparative anatomy, in its handsome building on Boylston Street, has set itself at work in earnest to procure subscriptions for the Garden. According to the latest scheme, it is proposed to divide the collections, placing the land animals in one park, and the aquaria in another, some miles away, which borders on the water, and, possibly, another part of the collection in a third. With all deference to the wisdom of those who are directing the affair, it seems to us that it would be a great pity to divide the collections in this way. Although the Marine Park would be conveniently situated for getting a supply of salt water for the aquaria, its exposed location would make it almost inaccessible in winter, or during an easterly storm; and the proportion of visitors whose enthusiasm would sustain them, after wandering through the Franklin Park Garden, in travelling a long distance to the aquaria, is very small. There is no work more fatiguing than sight-seeing, and even the pleasures of a visit to a zoölogical garden are much enhanced by occasional rest and relief, such as is afforded by sitting down and looking at the sea-anemones, after the excitement of seeing the ferocious beasts fed; or of breathing the fresh air around the seal-pond, after too long a sojourn in the monkey-house. Some years ago, when the project was first talked about, it was proposed that the Massachusetts Horticultural Society, the largest and most enthusiastic association of the kind in the United States, should join with the Natural History Society, and erect a building for its exhibitions, which are sadly crowded in its present quarters. It is much to be hoped that this part of the scheme has not been given up. The Franklin Park is large enough to accommodate the whole, and for educational purposes, as well as for economy of administration and brilliancy of effect, to say nothing of the convenience of visitors, it is very desirable to have all the collections, vegetable as well as animal, together. To recall only a few foreign examples, it is hardly too much to say that the London "Zoo" owes a large part of its immense popularity to the beautiful gardening with which it is associated, and to the fact that it has no competitor,—the Kew Garden being so far off, and so little known to the public, as hardly to count as a rival. At Frankfort-on-the-Main, there is, at one end of the city, a splendid Zoölogical Garden, which attracts crowds of visitors, and at the other end the equally splendid and interesting Palm Garden, which attracts other crowds. Separately, each is famous in its way, but each unquestionably loses in reputation through the rivalry of the other; while, if they had been united in the same place, so that visitors could go directly from one to the other, their combined interest would far surpass that of the London "Zoo."

THE work of establishing the line of wire between Frankfort-on-the-Main and the Falls of Lauffen, which is to carry three hundred horse-power to a distance of about a hundred miles, by means of a current of twenty thousand volts' pressure, is going on rapidly. Meanwhile, some experiments with converters and other apparatus of the kinds which it is intended to use are being made at Oerlikon, in Switzerland, where there is an extensive establishment for the manufacture of such apparatus. Not long ago, an experimental line was stretched at Oerlikon, mounted on one hundred insulators of the ordinary sort, and furnished with converters at each end. Through this wire a current varying from thirty to forty thousand volts' pressure was sent for a considerable time, without any remarkable effects. The electricity showed no tendency to jump off the wire at the insulators, and even when one end of the line was laid on the ground, the loss of current was not serious. The transformation in the converters from about fifty volts to forty thousand, and back again, took place with perfect regularity, and current enough was diverted from the main wire to feed a line of thirty incandescent lamps, which burned quite regularly and evenly. For a further test, a telephone wire was strung very near the main power wire, but no particular disturbance took place in it, even while a current of thirty-six thousand volts was passing near it. Whether the use of such enormous electrical pressures will prove dangerous in some unexpected way remains to be seen; but if they can be safely controlled, they will be of great service in transmitting power as by means of them, a large amount of power can be concentrated and transmitted to a distance over a single small wire, and distributed again, on reaching its destination, among hundreds of consumers.

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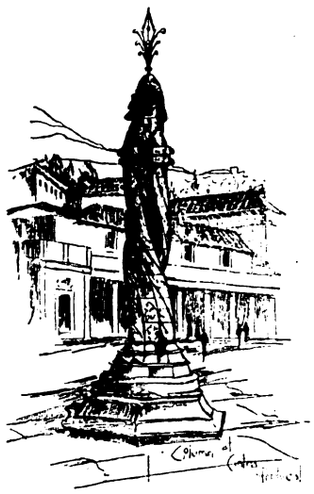
FRENCH ARCHITECTURE.[1]—IV.

RELIGIOUS SOCIETY FROM THE FIFTH TO THE TWELFTH CENTURY.—II.



A NEW art is always the creation of a new people, which has preserved intact its primitive characteristics. Just as the members of the same race of mankind are recognized by certain distinctive physiological tokens, such as general structure, features or a common physiognomy, so there are certain intellectual and moral faculties corresponding to these external lineaments, which are developed in this race with an accentuation not encountered elsewhere in a like degree.

These faculties are exceedingly varied and are often independent of one another. At times some of them are entirely wanting, while others take on an extraordinary development: in antiquity — where we will look for examples in order not to offend the *amour-propre* of any modern nation — no purely original artistic work existed among the Hebrews or Phœnicians, which might be considered as the expression of an aptitude for plastic productions; they borrowed everything from the Egyptians and Assyrians, and, at a later date, from the Greeks. This partial inferiority did not, however, deprive the Hebrews of that gift which enabled them to create a literature unsurpassed by any other. In another line, Phœnicia and her principal colonies displayed, from remotest times, an audacity in their undertakings, a talent for organization, commercial qualifications and at times a military spirit, which mark incontestably a vigorous and bold race. In like manner, in the Roman, artistic and literary qualities were always subordinated to the powerful faculties of the administrator and the soldier.

In some peoples, an harmonious balance of these various aptitudes is met with. But every race has an intellectual cast peculiarly its own, as it has a physiognomy recognizable by certain typical external features; it has its own conception of beauty, and also the faculty of creating in conformity with this conception; and for this very reason, its productions present characteristics which differ widely from those observed in the works of other peoples.

In a word, if the intellect, like the face, has features varying infinitely with the individual, it is not less true that the members of the same race, so long as it remains pure, have likenesses sufficiently striking to enable one to recognize their common parentage, and distinguish them from persons of every other race. In time, however, migrations, invasions, wars and the constant relationships and interchangings incident upon the growth of civilization, inevitably lead to fusions which complicate, attenuate and, perhaps, completely transform the most sharply-defined primitive characteristics. The race may thereby acquire new faculties which can be harmonized with the first, rounding them out or correcting them, and resulting at last in gain rather than loss. Sometimes, however, the native and the acquired qualities are too dissimilar to be grafted on one another, in which case the fruit becomes abortive and decay sets in.

This is always a critical period in the history of a people, the more so because, though it may come out of it equipped for immediate achievements, it may also have its vigor and vitality so sapped that it will disappear in the sea of humanity, without leaving an eddy to mark the place where it went down.

It is, then, through the contact of a new race with a more advanced civilization that a period of great artistic, architectural and literary fertility is ushered in: when a people makes its way out of the limbo of barbarism and appears on the confines of history, it bears in its bosom new faculties which, though often pregnant with power, are, nevertheless, for the time devoid of consciousness or at least dormant; the germ ready to burst needs a suitable and well-prepared soil, one which has hitherto been denied it. In the first place, a condition of settled comfort is requisite to the conquering race, which its former wandering and precarious existence could not assure to it. To the poet and artist, a delicate and even refined training for their work is sometimes necessary, a cultured intellectual *milieu*, and a following disposed to listen and apt to comprehend. As for the architect, he needs, as we know, in addition to all this, to have access to previously acquired knowledge, which it is difficult to assimilate, even with time.

Undoubtedly, it is not impossible for a race, though isolated and limited solely to its own inspirations, to attain that degree of civilization which is necessary for the creation of an art; this thing must have happened at least once, in the beginning. But it was then the work of ages, without the occurrence during the long formative period of more violent disturbances than it was able to resist; Egypt probably offers an example of this, as well as China and perhaps India. We know how lasting the productions were in these cases.

Generally, when a new race is once settled in the bosom of an ancient civilization, it promptly assimilates all that has been acquired before its advent, eliminates such elements as are too foreign, and introduces fresh ones of sufficient vigor to rejuvenate and often to transform the structures started again on the old foundations. It was thus with the Greeks when they came in contact with Egypt and the Orient; with the Romans, conquerors of Greece; with the Arabs, vanquishers of Persia and the Byzantine Empire; and with the barbarians, when brought face to face with Latin and Byzantine civilization.

This contact of a newly appeared race with an ancient civilization is ordinarily a necessary condition to the abridgment of the long term, which its unaided natural development would require; a period of exposure to the myriad chances and catastrophes of the perpetual conflicts of history.

But this condition is far from being all-sufficient. How many invasions have left in their track ruin to the invaded civilizations, without working lasting benefit to the conquerors? How few have given birth to a new civilization, marking, as a beacon, one of those moments towards which successive generations turn their gaze with feelings of admiration and gratitude!

Success in such an event depends upon the rare, almost extraordinary conjunction of circumstances, which are at the same time complicated and independent of one another. In this sense it may be said that the great artistic periods have nearly always been ushered in by chance; for what we call chance is nothing else than the fortuitous coincidence of independent conditions, a coincidence effected in accordance with no regular law, so far as we can discern.

If a barbarous race be devoid of the necessary qualifications, or if, on the other hand the invaded civilization fails to retain sufficient vitality; if by the natural effects of time its traditions have gone to decay and its artistic faculties have too far degenerated; if, in the eyes of the barbarians, it no longer exercises a due prestige; or again, if the genius of the two peoples is too unlike, if the incongruities are too irreconcilable; finally, if the invading race is so weak numerically that it is swallowed up in the mass around it, without forming a permanent stock; or if, on the other hand, misery and dispersion impoverish the enslaved nation to an excessive degree,— if any one of these dangers shows itself too prominently, the invasion will merely result in a general downfall, with no ulterior compensation and with no prospect of a resurrection at some future day.

It is with these fusions of peoples as with the compounding of metals. Not all metals can be made to enter into an alloy, nor in all proportions. There are some which will remain obstinately separate, at the bottom of the hottest crucible; those even which show some affinity for one another will lie distinct in the mass, unless introduced in certain narrowly defined proportions; and only an incoherent mixture will be obtained, wherein the original properties of each metal are marked or altered, weakened or destroyed by those of other heterogeneous elements. Only when all necessary precautions have been taken, and when each element is present in exactly the right proportion, is the composition produced which we call alloy, in which each metal loses its own independence and goes to make up an entirely new and homogenous body. However small a particle you detach from this alloy, you will find it always of the same composition, one and inseparable; and the alloy obtained presents new and special properties which sometimes differ totally from the properties peculiar to each of the constituent elements.

In the twelfth century, all the conditions requisite to the

[1] From the French of P. Planat, in Planat's "*Encyclopédie de l'Architecture et de la Construction.*" Continued from page 37, No. 799.

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formation and development of a new and original art were found in conjunction; the old civilization, which, between the fifth and the eighth centuries, had seemed buried beneath the débris, had taken on fresh vigor from the ninth century, and had just produced a rare and beautiful efflorescence in the eleventh century and the beginning of the twelfth; it was then still capable of furnishing the peoples of the north with the examples needed to hasten the development of their own artistic spirit.

The Frankish race has now attained a degree of civilization favorable to a flowering out of the arts. Wherever it has become firmly established, it possesses a sufficiently marked predominance to enable it thenceforth to put its own stamp upon its works, though at the same time it must borrow its materials from foreign civilizations. By contact with the latter it will gain what it still lacks though without letting go of what constitutes its own force and originality.

Now, then, that it was possible for a new architecture to be created, where was it destined to see the light? Was it in the heart of Germany, where the Frankish tribes originated, in regions having only distant and indirect relations with that old society from which the indispensable initiative must come? Truly not, for the contact necessary for this creation was not realized there. Was it in the most remote provinces, where the men of the north, occupying the farthest outposts, were scattered among peoples of quite different stock, manners and institutions? Surely not there either, for the new element was not sufficiently preponderant, it had already been altered, the native blood had not remained pure.

The region where, apparently, the looked-for art would appear was that lying on the confines of Neustria and Austrasia, not too far from the original sources nor too far from the points where the old civilization flourished; that is to say, somewhere in the country between the Loire and the Rhine, where the Franks of Austrasia came in contact with the Franks of Neustria, who were earlier comers and who had, up to that time, been unable to produce any artistic work exclusively their own.

The first wave of invasion had, as it were, not brought a sufficient quantity of fertilizing material to transform the nature of the ground; the importation of a second and more powerful alluvion was needed for this. Then a few centuries — from the eighth to the eleventh — were required for the latter to penetrate deeply into the soil.

We shall certainly not attempt, as some archæologists have done, to settle rigorously the question of which was the earliest of all the edifices to which the term Gothic may be applied. It would be necessary to determine first — in the continuous chain of transformations from the Romanesque to the Gothic — the precise moment when Romanesque forms and dispositions had disappeared and Gothic elements had come in to such an extent as to justify one in dropping one of these terms and adopting the other; this grammatical, rather than architectural, distinction is above our powers of discernment. We will not therefore attempt to decide where the first Gothic structure was cradled; still less will we try to determine where the architect of this embryonic creation originated, although that would be necessary in order to enable one to fix the paternity of the style upon a particular province. These questions seem to us almost incapable of solution, and we deem it wise to stick to the general facts and the laws of *ensemble* noted above; we would refrain also from ascribing the origin of an event, so important and so general as the creation of a new architecture, to petty and accidental circumstances.

What form would the new-born art naturally take? Military architecture certainly made its appearance at an early date; but it was incapable of producing works of art of an elevated character, for in it art is wholly subordinated to the necessities of defence. Civil architecture had not yet been developed on a large scale, for, outside of their fortified castles, the Franks of the period saw no need or even use for luxurious structures adorned with all the resources of art.

There was at that time one grand sentiment alone which was pervasive enough, strong enough, deeply rooted enough, to call forth a really grand creation, and that was religious belief.

Here, too, we must take into account the important influence which the Crusades exercised in various ways over all the fixed populations of Western Europe; these movements were themselves the outcome of an ardent faith, and they exalted religious feeling to a still loftier pitch; they brought all the tribes just issuing from barbarism, without exception, into contact with the highest civilization of the Orient; they put these tribes into closer and closer relationships, uniting them in common expeditions and mingling them intimately with one another. They thus paved the way for the rapid diffusion, throughout all the regions occupied by the men of the north, of the in-coming art.

The Crusades caused an extraordinary awakening of the human mind all over Western Europe. Amid disorders, struggles, rivalries, wars and invasions, a common sentiment, a single tie had survived, namely religious faith. "The world of the eleventh century had in its diversity one common principle of life. . . . A religious war was the only bond that could bind it together; the diversity of race and political interests, which kept it divided, could be forgotten only in the presence of a greater and more general diversity." Disregarding all distinctions of rank, class, origin and race, hordes and disciplined armies alike set off in succession from Toulouse, Normandy, Picardy, Flanders, England and Germany. They founded in distant lands principalities and empires which were subject to the feudal régime, and which had only an ephemeral existence. But the barbarians had at different times found themselves in the presence of the Byzantine and Arabic civilizations, and what they witnessed there made an indelible impression upon their minds. The remnants of Latin civilization, letters, the arts and sciences, had been dispersed and had almost wholly disappeared in the darkness in which all Western Europe had been, until now, enveloped. On approaching the shores of Asia, a radiance streamed upon these eyes unused to the light.

The impression made was deep and lasting, and it was religious architecture, especially, that profited by it.

Religious architecture had long been in the hands of the monastic orders, which having establishments scattered throughout Europe, had intimate relations at an early period with the civilized world, where they trained or hired architects and builders, master-workmen and artisans; these constituted a part of the order and journeyed for it from one house to another. The Byzantines and the Lombards of Italy, by this means, exerted a powerful influence for a long period over the style of the monastic constructions.

By the side of the regular clergy, were the secular clergy, who were long too barbarous to be able to compete with them. We have seen that the highest functions of the clergy gradually passed into the hands of the Franks, and, in many cases, of the representatives of their most influential families. The bishops and archbishops of barbarian origin, jealous of the influence, wealth and power of the monastic orders, whose establishments extended to the boundaries of distant empires, soon entered into rivalry with them, and conceived the design of rearing magnificent edifices which should symbolize their own grandeur. It was very natural that they should not wish to employ the builders attached to the monastaries; they therefore formed a corps of masters, independent of the monkish orders and bound to the prelates, but who may have belonged to the same race and had the same origin as the others. What is certain, in any case, is that the cathedrals which sprang up at the bidding of powerful masters under the direction of the clergy, were conceived in a spirit differing radically from the Latin, and were inspired by bishops of Frankish origin.

In the provinces fully occupied by the Franks, creative tendencies and an artistic taste hostile to tradition had already formed, as might be expected in a young and vigorous people, that had ceased to be content with inspirations derived from external sources.

Naturally, the first fruits thus realized would at once attract and charm souls eager to create for themselves; a wide-spread rivalry in the construction of masterly works would be the immediate result. This accounts for the rapidity with which the new style, when once inaugurated, made its way over the country and among all peoples of Germanic stock, and explains the fact that contemporary examples of it exist among these various peoples, the origin of which must be assigned to the earliest years of Gothic art.

It was a grand style, and wholly overturned traditional ideas; this will not seem surprising, if the conditions noted above as necessary for the appearance of a really original art be accepted. But many an admirer of this style, overlooking the inevitable and sometimes quite unsuccessful gropings of mediæval builders, has gone so far as to declare that it appeared, from its cradle, as a profoundly logical and entirely rational style; that, even in the smallest details, reason reigned as absolute mistress;

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some have even attempted to create a sort of monopoly for it in these respects, assuming it to be the only architecture solidly based on logic and reason.

These are exaggerated statements, which may be excused, coming as they do from persons defending a just cause, but who, roused by opposition, sometimes overstep the bounds of careful discrimination. Looking at the matter coolly, it may be asserted that there never was a noble architecture without good construction, nor good construction without logic and reason. The Parthenon of Athens, the Pantheon of Rome and that of Paris, are as logical in their way as the cathedrals of Laon or Beauvais. The Gothic groined vaulting, which was, moreover, derived from the Romanesque or Byzantine vault, is a very happy solution; the Byzantine dome is not less successful; and that of St. Peter's has its own merits. It would be easy to multiply comparisons of this sort; it would be useless in the eyes of men endowed with any wise impartiality. Nor shall we have the cruelty to analyze too minutely certain dispositions of the Middle Ages which, we are told, are wholly unique and wrought a revolution in construction; in reality, the Gothic architects seem to have been quite guiltless of these clever and subtle inventions in constructive science, for examples of them are, to our knowledge, more than rare. These miracles of ingenuity most often prove, on examination, to be at best only mediocre solutions.

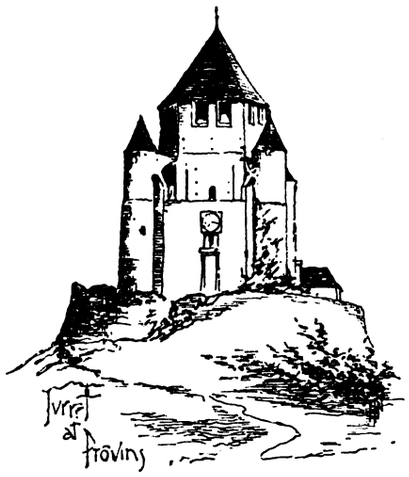
It has been claimed also that the Gothic is our national style *par excellence;* according to this dictum all our other architecture is merely copied from foreign sources. We cannot agree to this proposition; moreover, it would be well to come to a clear understanding as to the use of terms here; a national art in the Middle Ages presupposes the existence of a nation, and one cannot speak of a nation, or of nationality, in France, until a much later date; not, in fact, until just the period when Gothic art was doomed, and was even on the verge of disappearing forever. But it is unquestionably true that the Gothic style is one of the most purely original styles, and that it has borrowed as little as possible from without. It is the production of a new race possessed of creative genius, during its period of unimpaired vigor; but it must be acknowledged that this race constitutes but a relatively unimportant element of the French blood. In applying the term, national art, to works reared on our soil by men coming as conquerors from the far-away lands of northern Europe, we forget that the same title might be given, with as good authority, to Gothic art in England, and, perhaps, with even a greater show of reason, to the same style in Germany.

Why should we dwell on the quarrels of controversialists who, though certainly sincere, are yet imprudent? One fact remains undisputed, namely, the beauty and grandeur of Gothic art. It has left admirable productions in more than one country. Those found in some parts of France figure among the oldest, the most beautiful and the purest. The race which created this style is not foreign to us; it was among us, in contact with our civilization and refined, cultivated and developed by it, that the conquerors were trained and here that they were able to create their masterpieces of art; then, they were gradually drawn into the crucible, wherein Gallo-Romans and Franks were fused, to constitute at last the strong French nationality. Cannot that suffice?

[To be continued.]

ANOTHER WONDERFUL CLOCK. — Another marvellous piece of mechanism has, says the *Jeweller and Metalworker*, recently been exhibited in Paris. It is an eight-day clock, which chimes the quarters, plays 16 tunes, playing three tunes every hour, or at any interval required by simply touching a spring. The hands go as follows: One once a minute, one once an hour, one once a week, one once a month and one once a year. It shows the moon's age, rising and setting of the sun, the time of high and low tide, besides showing half-ebb and half-flood. A curious device represents the water, showing ships at high-water tide as if they were in motion; and, as it recedes, leaves them high and dry on the sands. The clock shows the hour of the day, the day of the week, the day of the month, and the month of the year. The mechanism is so arranged as to make its own provisions for long and short months. It also shows the signs of the zodiac, and the difference between sun and railroad time for every day in the year.

ETRUSCAN ART.[1] — III.



WHILE the Etruscans have not left us any architectural work of capital importance, we possess a sufficiently large number of documents which enable us to affirm that they had much taste in plastic art. From the time that they emerged from barbarism they strove to give to all objects which they used forms both bizarre and elegant, and to fashion them in such a way as to give them an agreeable aspect. Even the objects which we discover in the tombs of the first epochs bear testimony to this taste. The porringers, vases, amphoras, lamps, all are modelled first with a rude art and then with a degree of fineness which continually takes on more perfection. One remarkable trait is that the Etruscans especially excelled in the art of modelling in clay and that the ancients always spoke in flattering terms of the terra-cotta statues made in Etruria, a fact which does not prevent our discovering occasional pieces of sculpture in marble or in bronze which have a certain value. The fetiches, the household articles, the *stelæ*, are often decorated with designs. We also see in museums a great number of sarcophagi, on the lids of which are found a female figure in the attitude of repose. Often these sarcophagi are also covered with bas-reliefs, which almost always represent the funeral games and have an incontestable interest; but pieces of sculpture of real value are rare. I will mention among others the statue of the orator, found near Lake Trasimene, which is to-day in the Museum at Florence. The orator is in the act of haranguing a crowd. But for the great fault, in a man who is supposed to be speaking, of having his mouth closed, his attitude does not lack for breadth or movement. Amongst the bas-reliefs the most remarkable are those upon the cinerary urns which are found in the museums at Florence, representing Ulysses passing before the rocks of the sirens; the one representing Actæon devoured by his dogs and that whereon we see the death of Echelas and Polynices, which are also at Florence; the bas-relief on the sarcophagus found near Perouse, where the artist has reproduced a procession proceeding to a tomb for the purpose of accomplishing a sacrifice and two which can be examined in the Micali collection, which represent the agony of an old man and a scene of separation. The first of these bas-reliefs is on an alabaster urn, and the other on a sarcophagus found at Chiusi.

In the way of curiosities, I ought also to mention a cinerary urn in travertine, covered with polychrome stucco, belonging to the tomb of the Volumni at Berouse. This urn is a beautiful composition; it bears winged figures at the corners, and exhibits, as do a great number of marble Etruscan tombs, a bed of state, upon which lies extended a personage of importance. But the most characteristic thing which it presents is the polychromy which had such vogue in Greek sculpture and of which traces have been found in the accessory sculptures of the Parthenon. Upon the lid of a sarcophagus at Vulci, we see two figures, a man and a woman embracing one another, probably spouses; this design has an extremely distinguished air. The countenance of the woman in particular is of remarkable beauty. In the Museum at Florence can be admired a terra-cotta statue of Apollo, which comes from the pediment of Luni, and represents the peculiarity of departing farther from the consecrated type which Grecian sculpture had bestowed on this god, which allows us to suppose that we here find ourselves in the presence of a truly indigenous work, pure from every foreign influence. But the three most beautiful pieces of Etruscan statuary are without doubt the bronze Minerva found at Avezzo, the Mars discovered at Todi, in Umbria, and the Apollo, also in bronze. The Minerva, which is in the Florence Museum, is stamped with great majesty. Her robes are draped with a consummate richness of effect and her attitude breathes nobility. This work is certainly of Greek origin or Greek inspiration. I cannot say as much for the Mars of Todi, which in nothing resembles the ideal which Hellenic artists have transmitted to us as the god of war. As to the Apollo at Ferrara, it is very Etruscan, not only because he bears on his left leg Etruscan characters, but particularly because his features express a peculiar conception, very individual and differing in everything, like the fragments at Luni, from the typical Apollo of the Greeks or the Romans. In spite of these isolated specimens which have real value, it is to-day still impossible to form any exact idea of the history of Etruscan sculpture. We know neither the chronology, nor the schools, nor the names of the artists and all that we can understand of the styles does not yet

[1] Continued from No. 798, page 23.

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permit us to classify them. M. Martha himself has been obliged to renounce all attempt at making a classification and he has been very wise in limiting himself to bringing together some observations on the fashion in which this art was developed. In spite of the tendency which the Etruscans had toward plastic art, it is certain that without the aid of foreigners they would never have reached a remarkable degree of perfection. Whenever they were left to their own devices, their plastic works were immobile and archaic in form. They began to acquire perfection when they began to inspire themselves from the models of Oriental art, which came to them in the form of carved ivory, jewels, amulets, arms and stuffs. Later, the Greeks, who came into Etruria, towed, as it were, by the grand Asiatic currents, supplanted the Oriental models and became almost exclusively the masters of Etruscan art. The signs of this double influence are easily recognized in the most ancient Etruscan works which bear the stamp of it. At the time of the grand migrations, Grecian artists, who were numerous and widely scattered over their own country where their work was relatively poorly paid, because of the very fact of their numbers, spread themselves in great numbers over all the roads of the Occident, and it is natural that they should have sought by preference the most flourishing nations, who were more likely to recompense them satisfactorily. Etruria, which was then very prosperous, was one of the regions to which, apparently, these Grecian artists were attracted. We know the names of several Corinthian artists who came to Tarquinii with Demaratus, whom I have already mentioned. These are Ecphantos, Euchair and Eugrammos, mentioned by Pliny. Later, there are mentioned at Rome two Grecian artists who came from Etruria, Gorgasos and Damophilos, employed in the construction of the Temple of Ceres. It has been, then, a mistake to hold that the Etruscans were the inventers of statuary in Italy. The only merit perhaps which can be recognized in them is their having been the people amongst whom were executed the earliest statues on the peninsula, but by the hands of foreigners. At precisely what date all this importation took place remains still obscure, but it cannot go much beyond the time when the great currents of Corinthians, Carthaginians and Greeks directed themselves toward Italy. It can be quietly assumed that central Italy was the point of disembarkment where these grand civilizing currents met in rendezvous, particularly the Etruscan ports of the Mediterranean, the doors of the peninsula. Thus Etruria was the way by which the first glimmers of Oriental civilization were able to penetrate the very bosom of Italian barbarism at the time when Rome was not yet born, when from the Alps as far as Sicily there could be met only primitive and rude peoples.

From the examination of objects found in all the Etruscan cities it results that toward the sixth century of our era sculpture was still limited to the Etruscan cities of the south; that is to say, the maritime cities. It is only three centuries later that one finds the trace of it toward the north and in the interior, at Bologna, Cortona, Perouse, Volterra and Chiusi. All this time was needed for art to accomplish its work of penetrating the depths of Etruscan society. Nevertheless, we can remark that several centres were formed, and that each centre had its specialty, probably according to the taste of the inhabitants and according to the gross material which could most easily be procured in each locality. At Cortona, Arezzo and Perugia bronze was the fashionable material. At Clusium stone was carved. At Volterra they chiselled alabaster. At Tarquinii and Ceræ they used terra-cotta. It is also remarkable that each locality had its own style, its own school and manner, and this comes doubtless from the fact that each centre was created by artists who brought with them their several processes, their models, their inclinations, which they communicated to their pupils and their imitators. It even seems that, for each category of objects, there prevailed a different æsthetic quality derived from the exclusiveness of the ateliers. At Chiusi, for instance, to cite only this city, one recognizes very marked differences in the styles of the *canopes*,[1] statues, bas-reliefs and urns. The *canopes* are conceived with an unconscious but sincere and very pronounced realism, which denotes a real spirit of observation and a serious study of the human countenance. The statues, on the contrary, aside from the heads, which have sometimes an evident expression, are always modelled after a common type, with great dryness of form, without grace and without truthfulness. The bas-reliefs of the cippi are without grace or proportion, hardly comparable to the poor studies of the early times of Attic art. On the contrary, the urns, like the *canopes*, evidence a great searching after reality and sometimes an exaggerated care for truth. All this proves to us that Etruscan sculpture, like all arts which flourished in thjs country had no fixed rules, following no regular and normal course of development. Ceaselessly submitted to innovation brought by the last arrivals, exposed to a continual retouching and enlargement of ideas and processes, it was formed at hazard, by fits and starts, sometimes advancing, sometimes retreating, but never succeeding in becoming an organic art, purely because, in place of being indigenous, it was before and above all an imported art. It would, therefore, be impossible to trace the chronological history of Etruscan art, as can so easily be done in case of Greek art, which is quite homogeneous, whose phases can be followed from primitive archaism up to the decadence, passing through the periods of its bloom to full maturity. Etruscan sculpture has no age, because one sometimes discovers it to have quite an advanced degree of perfection, only to fall again into infancy; then, after a period of experiment more or less long, it suddenly reaches a moment of inexplicable prosperity.

The thing which is definite as regards the sculpture of the Etruscans is its poverty of invention. The types are reduced to a small number and they are not individual. The religious images were borrowed from Asia or Greece. Some of the compositions are only reproductions of those which already had a place upon Greek pediments. Almost all the bas-reliefs are imitations of Hellenic work. In general the execution is heavy, except for the expression of the countenances, which is ordinarily striking. We find also, here and there, certain statues like those which I have mentioned, which depart from the ordinary style, such for example as the "Orator" at Florence. The general air of the personage has in these too rare cases a great expression of nobility, and breathes movement and life; but these are exceptions which are not sufficient in number to efface the impression of poverty and narrowness which is left by a far-reaching analysis of the works of Etruscan sculpture which we know.

Now let us pass to Etruscan painting, as to which we can formulate more precise and more complete ideas than as to their sculpture. The thing which offers the most interesting point is the study of the processes employed by the Etruscan painters. The documents are numberless. Unfortunately the best paintings, which have lain beneath the ground for centuries, have been injured by dampness. Others have been damaged by too hasty excavation, and again others bear marks of the injuries which at different epochs Etruscan tombs had to endure. But we have succeeded, more or less, through copies, through restorations or by repairs — the fidelity of which may be called in question, but which, nevertheless, are of great assistance to us in these studies — in reaching certain conclusions. The German Institute and the Gregorian Museum at Rome, as well as the Museum at Bologna, and the British Museum, possess fairly good collections of copies in color, but the surest studies are those which can be made on the spot, in the caves where the paintings can still be seen on the very surfaces where they were executed, and where, consequently, one can take better account of the styles and inclination prevailing among the Etruscan painters. At Corneto there are fifty or more caves with painted walls; twelve at Chiusi, four at Centari, two at Vulci, and at Orvieto. These are almost always, with two exceptions, mural paintings, and the first remark one makes is that these paintings are always executed upon the tufa or upon walls of masonry. When the tomb is of built masonry it is not painted. I believe there is not a single example of Etruscan painting in distemper. All are in fresco. As the tufa itself forms a very permeable background naturally prepared to receive color, the coating applied is ordinarily very thin, its thickness varying from ten millimetres to two centimetres. In analyzing these paintings, one obtains proof that the Etruscans had the practice of working after cartoons, and probably also used tracings. We can frequently notice on the plastered surface the traces of the dry point used to mark the outlines. With few exceptions, also, the background of the picture was never painted. It was the color of the plaster itself which furnished the distant planes of the picture. The colors of the Etruscan palette are grayish green, blue, ochre, lime-white, red and lamp-black; but these colors are not always met in Etruscan paintings. The paintings of the first epoch are composed in two or three colors, black, white and ochre. The paintings ordinarily represent banquets, dances, games, races, combats, hunts, portraits, deathbed scenes, funerary compositions, Greek or Etruscan legends, landscapes, and animals; but it is the gayer subjects, such as banquets and dances, which predominate, as if it were a part of the Etruscan philosophy to soften the conception of death by joyous imaging; as if it were to be considered only a happy event over which man need not borrow trouble. In the banquets are often shown licentious scenes, naked men and women, thus indicating the libertine habits of the time, and women, who are often found with cups in their hands, thus admirably justifying the reputation of passed-masters of drunkenness which the Etruscan dames enjoyed in the times of the ancients. From the pictured dances, it appears that the sound of the flute and the castanet was most agreeable to the Etruscans as accompaniment for these exercises. Sometimes the sexes alternate, or are mixed together; sometimes we see all the men on one side and the women on the other. The dance with the Etruscans had nothing methodical or coherent; dancers gave themselves up to disorderly and frantic gestures, jumping about as if the perfection of movement consisted in exhibiting prodigies of agility and equilibrium. With their dancing were exhibited feats of address, and there can be seen in a crowd of dancers personages who, while executing capers and pirouettes, play with crowns and cups overflowing with wines, holding them out at arm's length without spilling, or emptying them at a single draught. The games are as various as the dances, but they are more frequently the sports of the circus that are discovered. I do not remember to have seen in the Etruscan collections a scene of combat with wild beasts, a fact which would prove that the shameful merit of causing men to fight with lions and tigers must, in the Western World, be credited to the Romans.

The study of these paintings concerning games is very useful in conveying knowledge of Etruscan manners and customs; and these paintings represent the inhabitants of Etruria as a gay people, lively, agile, comfortable and well content. The indication of the muscles, although anatomically false, gives evidences of robustness. Legends take an unimportant place in the collections with which we are

[1] Egyptian mortuary vases.

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familiar. We see that even in the funerary decorations, the Etruscans had an unconquerable inclination for the convivialities of life; and upon this point, the Grecian artists, so devoted to mythological subjects, have been forced to make considerable concessions to the taste of the people for whom they worked when they came to Etruria. One can almost count upon his fingers the paintings which have for a theme some legend drawn from Greece. In these paintings the names of personages are almost always indicated in Etruscan characters. They are Hades, Proserpina, Geryon, Memnon, Tiresias and Ajax, or some scene from the Odyssey, where we see Ulysses sinking a stick in the eye of a cyclop. Elsewhere it may be the death of Cassandra, slain by Ajax at the feet of the statue of Pallas; a sacrifice of Trojan prisoners, immolated by Achilles to the manes of Petroclus, before Agamemnon; the duel of Polynices and Ecteolus, or a combat of Greeks and Amazons. But that which is very curious to remark is that Grecian mythology is corrupted by becoming acclimated in Etruria, and that among the heroes of Grecian legend there are mixed types belonging to Etruscan legend, such, for example, as the terrible Tuculcha, whom we see by the side of Theseus and Pirithous, which same Tuculcha is only an Etruscan demon, a kind of winged Charon, who has an eagle's beak for a mouth, burning eyes and grinning countenance framed with Medusa-like hair. It is just this mixture of Hellenic reminiscences with local tendencies which forms the characteristic of Etruscan painting. And we see that the Etruscan painters have been constantly divided between their personal tastes, which urged them toward the realities of life, and the precepts of Grecian art which, together with the superiority of its technique, exercised over them an irresistable influence. Often they are discovered about to reproduce with almost brutal truthfulness scenes from nature and social life, which displayed themselves around them with the luxury and abundance of an already advanced civilization. Then all at once we see them inclining towards the foreign style, from which they not only borrow the manner of execution, but also the subjects, the conceptions, the conventional forms. The history of Etruscan art, if one can only sieze and fix its details, is only the history of this perpetual balancing between the love of realism which was the peculiar influence with Etruscan artists and the invasion of Hellenic genius. One thing which is worthy of remark, even in works where the preponderance of Hellenic influence is triumphant, is that the note of realism always makes itself apparent. One other detail should be noted, namely, that painting does not appear to have permeated all Etruria as sculpture did, but seems to have stopped at the limits of the maritime cities, and not to have passed beyond the regions where these cities could exercise a direct influence. But this is a mere induction which may have its foundation only in the results of excavations, which have not discovered up to now any important paintings in the interior of the peninsula beyond Orvieto in the valley of the Tiber.

In any case, apart from the historic interest which they present, Etruscan paintings have a very dubious artistic value. It is possible to point out here and there some delicate trait, some pure line, some well-poised head, some figure gracefully posed, some happy commingling of color, but these are isolated pieces of good luck. In short the general quality of the art is poverty of construction and lack of creativeness and dash. The execution is almost always hesitating, heavy, defective, the color unequal and arbitrary. Etruscan painters were merely artisans and professional colorists, and some minute comparisons have allowed us to establish that like the sculptors, the workers in ceramics possessed a certain number of stereotyped forms which passed from one workshop to another. From an historical point of view they are, on the contrary, very precious. Precisely because of the tendencies which influenced the Etruscan painters to study actuality, they furnish us useful information of great value as to the manners and customs of Etruria and the habits of a people, who, without being always at the height of the reputation which has been made for them, must have contributed a great deal to form the psychological character of the people of Italy, a people in short who, without contradiction, were in many things the masters of the Romans, their future conquerors.

It would be possible to make some interesting remarks about ceramic-work, metal-work, jewelry, but it is time to stop, and I cannot do better than to associate myself, with some slight reservation, in the conclusions of the author himself. Etruscan art is in its totality only a secondary art. It lacks the fundamental faculty of all art, creative genius. In architecture it invented nothing. It is in everything tributary to the foreigner. The pediment, the column, the vault, were borrowed from architects who came from the East. The pediment is imitated servilely from the Greeks; the column is spoiled in bastardizing the style; the vault alone has been treated by the Etruscans with a certain masterly handling and perhaps carried a step farther toward perfection. In accessories and decoration the Etruscan people are also servile imitators. They show originality only in the composition of wooden framing and who knows that they did even that? This did not lack in inventiveness and was not limited to adopting local usages, for it is possible that before their arrival in the region to which they have given their name, the indigenous people, inhabiting a country covered with forests, had before it the taste and the custom of using wood for framing and embellishing their dwellings. In painting and sculpture it is still from Greece and the East, especially from Greece, that they borrowed their subjects, their compositions, their technique and their style. Finally, before all else, they lack, besides originality, the æsthetic sense, that is to say, the love and comprehension of beauty, elegance, harmony, the superior conception of the ideal which compels forms to adapt themselves to the necessity of expressing an elevated inspiration.

The deduction must be drawn that the Etruscans were totally devoid of the qualities which would have permitted them in certain circumstances to have a national art. I have already remarked that they had the instinct for realism and a passionate love for nature and that, especially in the works of the archaic epoch, that is to say, the epoch when they had not submitted to the yoke of foreign art, they gave evidence of great capacity for observation and truthfulness. With such inclinations, a people can surely become artistic, if it has time to develop and urge its genius to the farthest degree of maturity. Unfortunately the Etruscans were a people rich and prosperous. The reputation of their prosperity drew to them at an early day Grecian artists who brought models, conventional if you wish, that already presented all the delicacies of a perfect art. It was a flood, an inundation, ever repeated and increasing. To every harbor of Etruria flocked artists provided with stereotyped forms, superior for delicacy of line and form, if not for nobility of conception, to the types which the Etruscan artists so painfully practised. Probably the purchasers preferred the foreign productions which, among other superiorities, possessed that exotic perfume which even to-day exercises a fascinating influence upon the crowd; and in order to endure competition, as well as to avoid fatiguing studies in a way where there was still a long distance to travel, the painters, sculptors and architects of Italy became not the rivals, but the imitators of their foreign competitors.

This does not mean to say that Etruscan art presents no interest. If it had no other merit than that of being the source from which flowed the art of the Romans, it would be enough to make it a subject worthy of the highest interest. I do not side with those who think, like M. Martha, that Roman art is a superior art. From many points of view, it is not worth more than Etruscan art. Italian genius slumbered for centuries over the ruins of Roman art, without experiencing the least quivering of life. The Italian Renaissance began when at Pisa, Florence, Siena, Rome, the leading Italian artists began to be able to admire the remains of Grecian sculpture, a thing which proves that the remains of Roman art had nothing vivifying, except in architecture. In this branch of art the Romans were incomparable. Everywhere that they passed their glory and their grandeur is affirmed in works of majesty and unexcelled solidity. Now the fundamental principles of architecture the Romans derived from the Etruscans. It is these last who taught them the laws of stability and proportion, the principles of ornamentation, and who made them acquainted with the vault, which plays so great a rôle in Roman architecture. It is true, as I have already said, it was not the Etruscans who invented it, but they gave it more breadth and solidity, and made its use easy and elegant. On this point it would not be fair to dispute their deserts. It is they, also, who taught their conquerors the art of fortification and the principal processes used in the construction of bridges, aqueducts, sewers and harbors, and who finally inspired them with the plan of private dwelling-houses, with those devices which correspond so well to the needs of the ideal family life, and notably with the atrium, the central space destined for the place of general assembly for the family. Finally the processions which the Romans sculptured on their monumental arches, the ornaments which are found on the lids of their sarcophagi, the bas-reliefs which decorate all funerary edifices, reveal a Greek origin; but it is through the intermediation of the Etruscans that the Romans were so early initiated into the beauties of Hellenic art. This precocious initiation has a great influence on the development of Roman art, for when, later, the Roman artists were by conquest brought into direct contact with treasures of Greek art, they were already prepared to comprehend them and imitate them as they did, though in so doing they lent them a rudeness and vigor which were not exclusively in their own temperament, but which they had remarked in the productions of the Etruscans. Without this characterizing robustness, Roman art would be only a flat imitation of Hellenic art. It is Roman precisely because before succumbing to the ascendancy of Greece, it had succumbed to that of Etruria. It is especially from this point of view that the study of Etruscan art is of capital importance.

H. MEREU.

GAS FROM WOOD. — The Attleboro' Gas Company, of Attleboro' Mass., U. S. A., has introduced in its works a plant for the manufacture of wood and oil gas, according to the patent of Mr. George Ramsdell. one other apparatus of a similar kind is at work in the State of New York. It is claimed that wood gas is the most healthful produced by any process, and that it possesses a greater illuminating power than any gas made. It is stated one cord of wood and 300 gallons of crude linia oil will produce 60,000 to 80,000 cubic feet of gas of 20 to 30 candle power, with a residue of two barrels of fine tar and 65 bushels of mercantile charcoal. The new process at the works has been put in such a condition that the coal-gas retorts may be used for the wood and oil gas, with the addition of a mixer and superheater. The wood used is maple, and when the gas has been extracted this is carbonized, leaving a fine quality of charcoal. By the Ramsdell process, the gas can stand a much colder weather without condensing or stratifying. — *Invention.*

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SOME GERMAN TOWN-GATES.

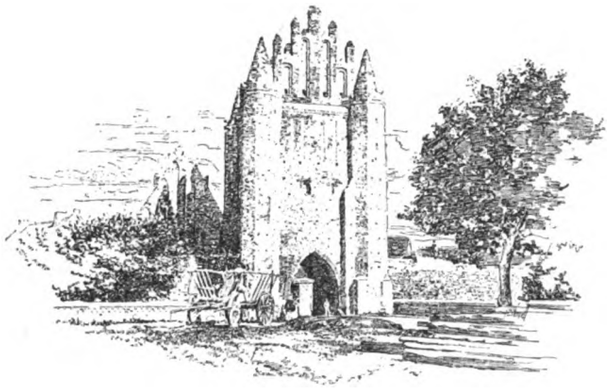

Fig. 1. The Friedland Gate.

TOWN-GATES are things of the past, but, after all, not of so old a past as we incline to fancy. Their origin, of course, goes back to feudal times: in Germany, for the most part, to the thirteenth and fourteenth centuries. But many an old gate was still in regular use so late as twenty years ago. In the North, where I have gathered my first harvest of photographs of these neglected monuments, a *Thor Schreiber* was still often lodged in an upper chamber long after the uppermost chambers of the tower had been given up to rats and final ruin. Or he had taken his seat of survey at a loop-hole in the lower wall.

You might have lived in the neighborhood of the town your life long; you might have driven in regularly once a week or daily, and your face and his phiz have observed each other grow leathery and wizen by age, yet your vehicle would be halted! Your friend would scramble to his desk as to a pulpit, and lift his voice to entune his ding-dong: "Who art thou? Whence comest thou? Whither goest thou? What is thy business there? How long willst thou there abide?"

His business was to take the inventory of your past and of your purposes — a work that is still undertaken in Continental Europe, but no longer face to face. There are too many faces, no doubt, that turn towards a town, in our age of steam-cars, for a magistracy to provide surveyors of each. The interlocution is done on its side by a printing-machine instead, which, unlike the poor gate-man, can turn off a thousand of the traditional "Who art thous?" in a minute. You write answers to the questions in your lodgings — a much more comfortable place to stand examination in than was the draughty archway of the tower-gate.

But who would not resign comfort — now and then, at least — for a sight again of the skull-capped *Herr Thor Schreiber;* for the musty smell of moss, mixed with the dampness of ponderous masonry; for the voice, with its liturgical pitch and fall, and all the picturesque sights and stirring sounds of the gate-court?

In feudal times, the assistant of the gate-watcher was a town-gate dog. "Every morning," runs an old manuscript [Lunælac 4° No. 202, Vienna], "the watcher and the dog shall see, before the gate be opened or the draw-bridge let down, if no one lies hidden behind the tower; and if a wood be in the vicinity, it shall be beaten up and searched through. If a person be let into the outer door, the same shall be closed first, and then the inner gate be opened. If a person be let out, the inner gate must be closed before the outer one is opened, and it must be kept shut so long as the outer one remaineth open."

We do not know whether the gate-dog was a bloodhound. It is hardly probable, however, for the enemy was seldom the departing guest with tracks to be followed. He was the approaching stranger, and, above all, approaching squads of strangers.

The important adjunct to a gate, for this reason, was an eye, rather than a nose. Yet, curiously enough, in the oldest gate-towers the architectural accessories gave as much account to the one as to the other. A dog-stall formed an invariable feature of the court-stalls, and the architectural projection that characterizes German towers of the fourteenth century was given, in early times, the name of *Pech Nase*, or tar nose.

The name for loop-hole was *Guck Loch*, or peep-hole, and was an unroofed opening. The *Pech Nase* was a roofed, awning-like formed outlet devoid of a solid floor. Where it occurs in its primitive form, the gate-tower to which it is attached belongs to early mediævalism. It continued, along with loop-holes, so long as the old arms of *close* attack were employed, and longer in the North than in the South. The line of defence which a *Pech Nase* opened was a sheer perpendicular line. Generally they were stones, tar and boiling water that were poured through its nostrils, or openings in the floor, upon sappers at work at undermining the wall beneath, or upon besiegers at work forcing the gate. When sapping ceased to be the chief means resorted to by the enemy for bringing down tower walls, and hand-to-hand fighting became even rarer and rarer, this perpendicular line of defence naturally became superfluous; and, as a consequence, *Pech Nasen*, that had controlled this line, begin to be omitted from architectural plans.

Mortars and the new instruments of warfare were instruments of *distant* attack, and, being planted at a distance, they required horizontal lines of defence on the part of the besieged. Now loop-holes met this requirement, and, while *Pech Nasen* were going out, we find these openings not only retained, but multiplied. They resumed the ancient name of *Scharten*, or shoot-slits, and are often widened to give room for a cannon. By the fifteenth century loop-holes reign supreme. Almost as many *Scharten* occur in some inner gate-tower walls as there were firearms in the tower-chambers and men in the town to shoulder or load the arms.

Recent centuries have seen the *Pech Nasen* of feudal times brought into life again under the transformations known as towerlets, oriels and balconies. But these transfigurations seldom grow out of public or town gate-towers, and for the reason that the elders of the towns, unlike independent princes or private builders, were held by tradition to the duty of seeing that the designs which they accepted fulfilled the ends of defence or of inspection. And in oriels there is no end aimed at, save that of convenience for the inhabitant and of decoration *per se*. While private persons have never ceased to have towers and lodges and every variety of feudal bar erected, no magistracy has had a gate-tower built within a century or two, or since the time when gates were actually no longer needed. The newest city-gate in Germany, of monumental proportions and ponderousness, is the Brandenburger Thor at Berlin, an ornamental structure already a hundred years old. Nor is this a town-gate any longer so much as a triumphal arch. It is unpractical for defence, and what it suggests are purely historical associations. The ground for the erection of a triumphal gate is a single occasion. The chief ground for its continued conservation is a sentiment of national pride.

The mediæval town-gate is an organic structure. What it bespeaks is a municipal need or practice, and its members are adjusted to the regular and to the intermittent wants of an organized population.

Being above all things an inlet and outlet, its site is prescribed in advance. In the North of Germany, where rivers are narrow, exquisite specimens of late Gothic gates span their sluggish waters. Their situation, as we shall see in a future paper, was determined often by that of the town grist-mill. Canals are arched by defensive and customs gateways, at the town boundary. The most frequent site for gates, however, was over roads, and my present examples, which can be dated at a glance as specimens of North German Gothic of the fifteenth century, occupy such sites. The Friedland Gate (Figure 1) is a square tower flanked by octagonal corner towers, and intersecting the ancient ring wall of the town. The flanking, separate tower, in its rear, is fallen into decay and ruins; its use as a defensive fortress having expired with the expiration of feudal warfare. The preservation of the gate, or exterior tower is due, on the other hand, to the maintenance of city tolls. When towns gave up taking your life or person, they continued to take your purse — or at least a part of it. Like the highwaymen in the *Traveller's Tale*

> "They let our necks go by a-wagie,
> But alack for the necks of our money-bagies."

The custom of town tolls, none the less was a god-send to architecture. It urged the magistracy to expend money enough on their feudal gateways to keep their stones together, down to our day; or over a period of national poverty and artistic dearth, to a period of national glory and munificent restorations. For although Friedland Gate is not restored, many dozens of gates have been — more dozens within the past decade, than in the whole of the last two centuries. From the time of the Thirty Years' War to the Franco-German War, gate-towers were not restored but only repaired.

I speak of gate *towers* because towers of considerable height are the rule for the setting of gates in the North. In this respect, Friedland Gate is typical. The country is the flat, or rolling land of Mecklenburg — a land that ought to be favorable to low watch-towers. But it must be recollected that the advantage which the flatness of the alluvial plains of North Germany afford in the way of wide perspectives, is put to naught by the prevailing thickness of the atmosphere. And besides, a certain height was necessary for defence in early times, as well as for an outlook. The greater the height from which stones were hurled, the mightier the force of their crushing blows. Then, too, the carrying distance of missiles was accurately calculated, and the defenders of municipal gates were provided with good weapons, and were set by their military architects out of the reach of the swarm of inferior missiles in the hands of the the private retainers that invariably formed a major portion of attacking forces. Out of the early necessity of defence grew a tradition. Height became an architectural symbol of defensive power in Northern lands. Nor was the symbol relinquished so long as defensive power was a vivid thing to be expressed. Height falls away in triumphal arches, quite naturally, for triumph spreads itself. Roman arches, which are the arches of triumph *par excellence*, were monuments to the *extension* of Roman empire. Their lines are predominatingly horizontal.

The outside, or façade wall of the Friedland Gate is five feet thick. The flanking towers at its four corners have the same thickness. The court-yard side, or back wall is four feet thick. We judged that the walls were from a foot to ten inches wider at their base than at their apex, without being able, however, to substantiate our occular calculation by actual measurements.

All four walls rise to near the roof in massive plainness. Their

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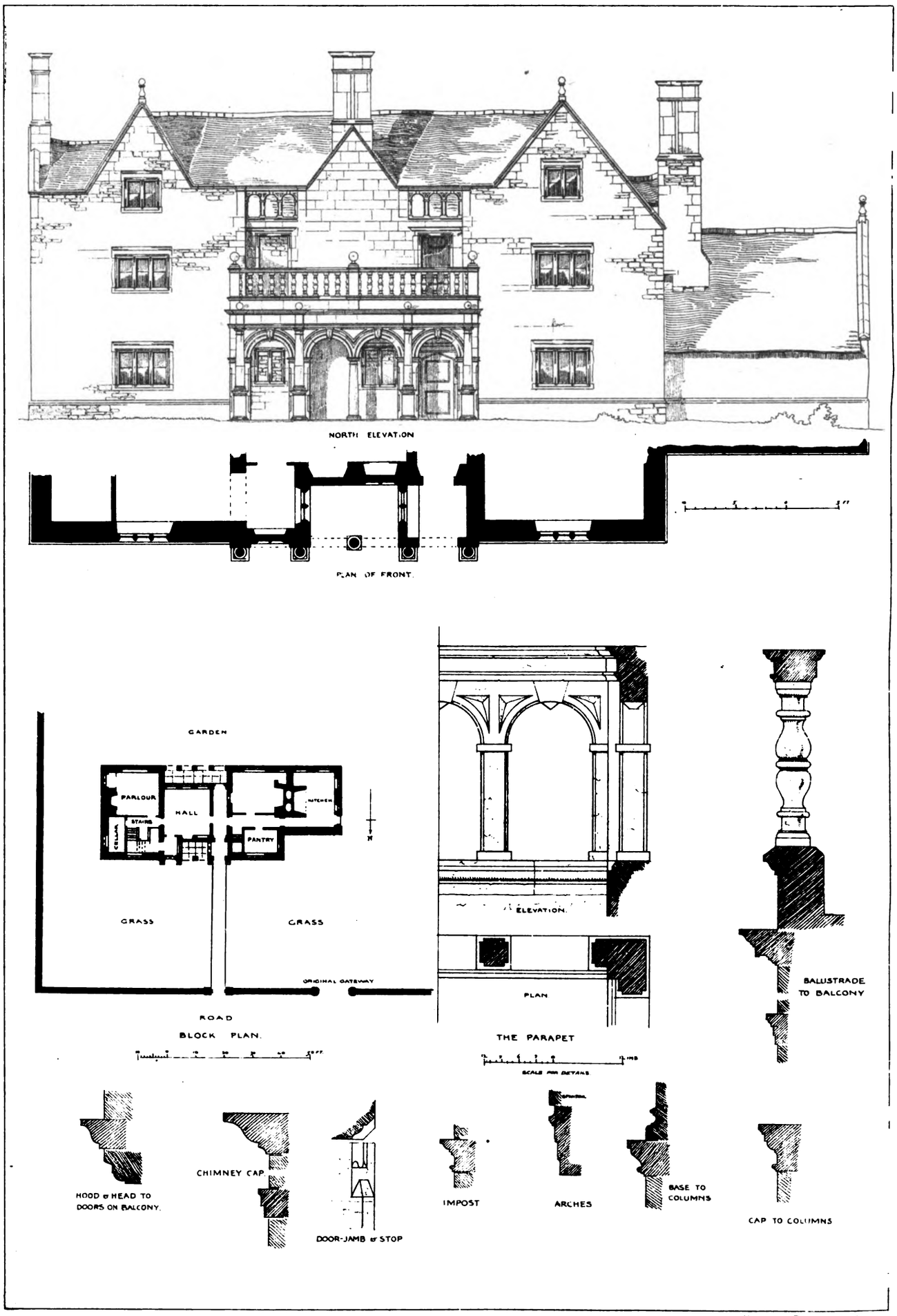

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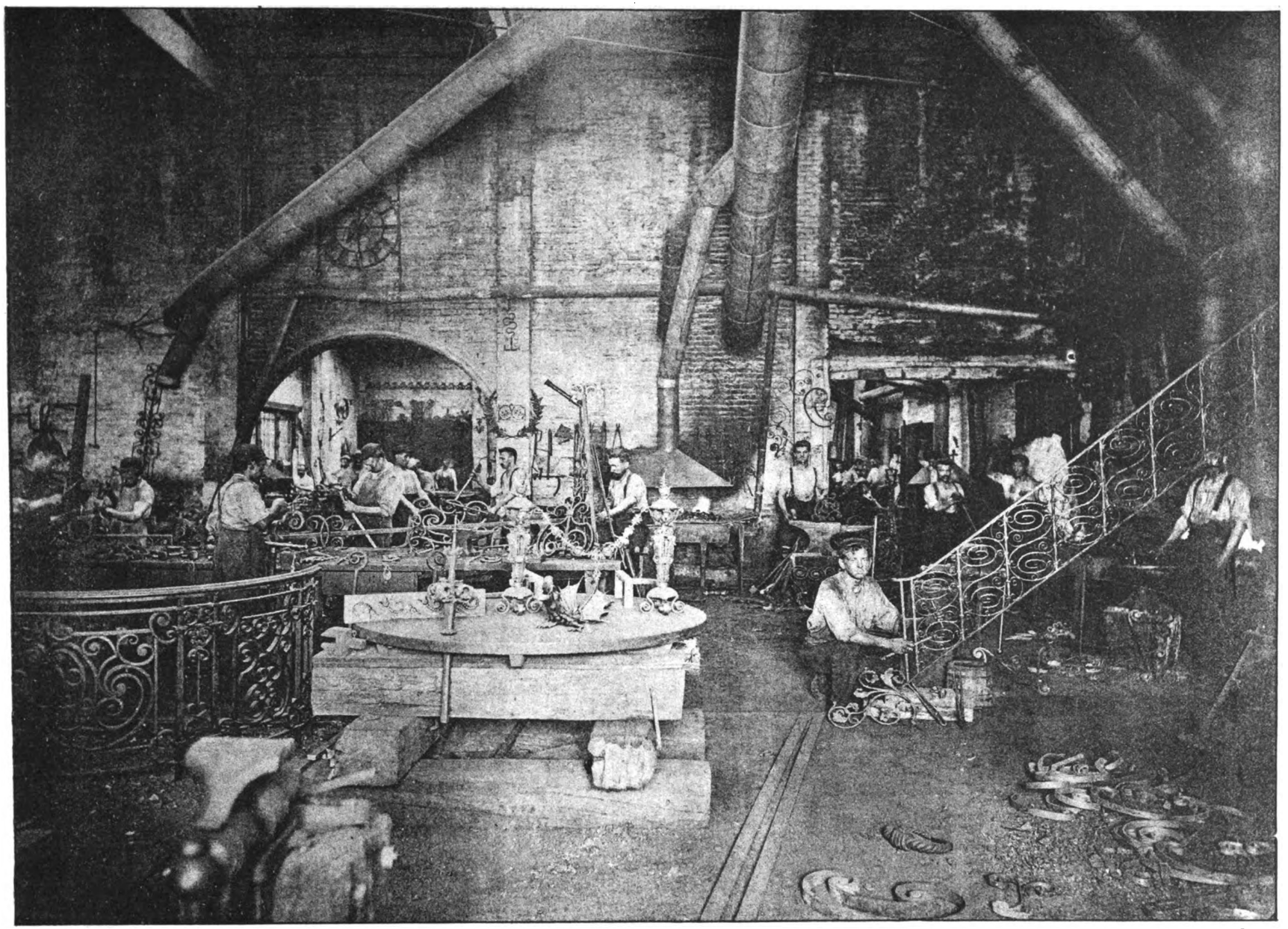

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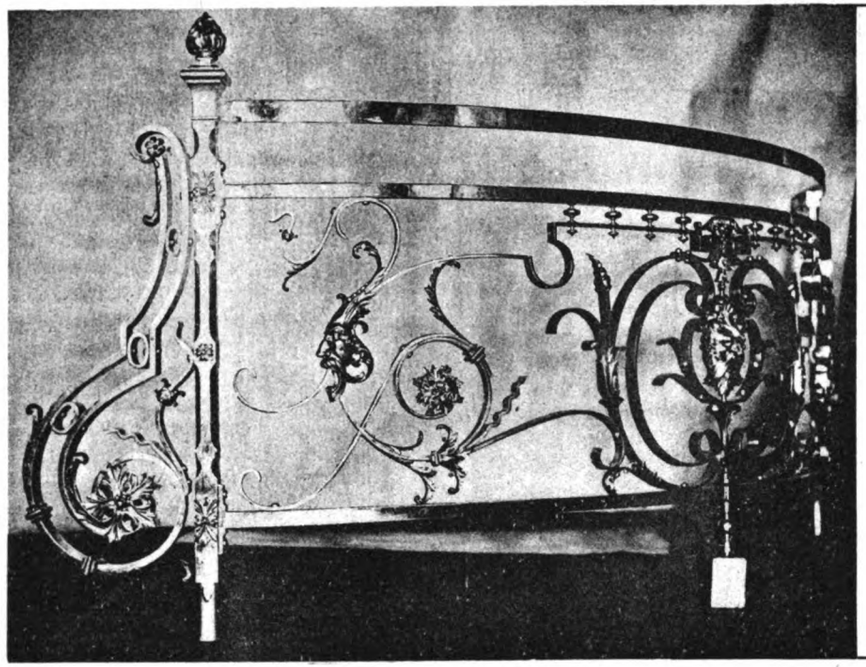

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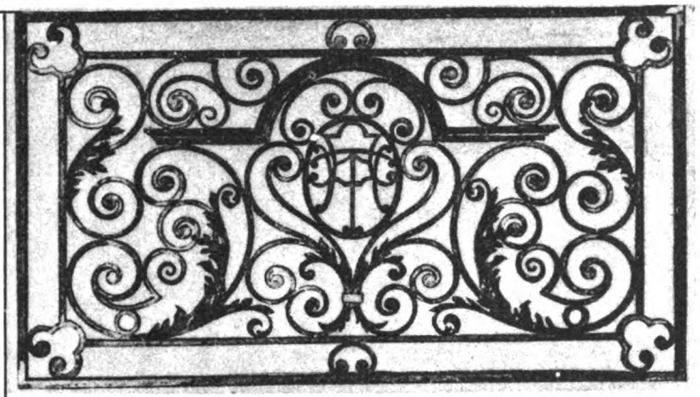

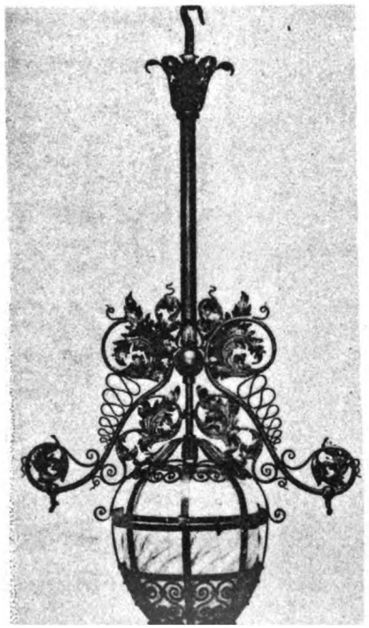

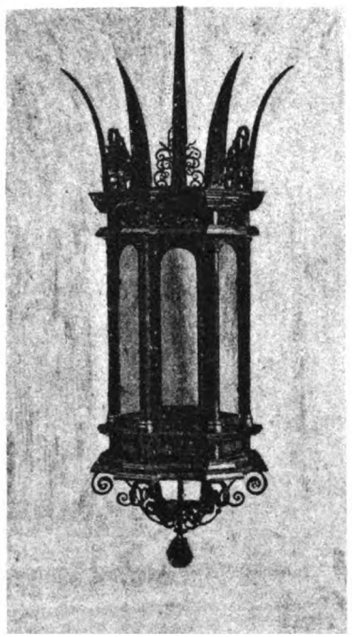

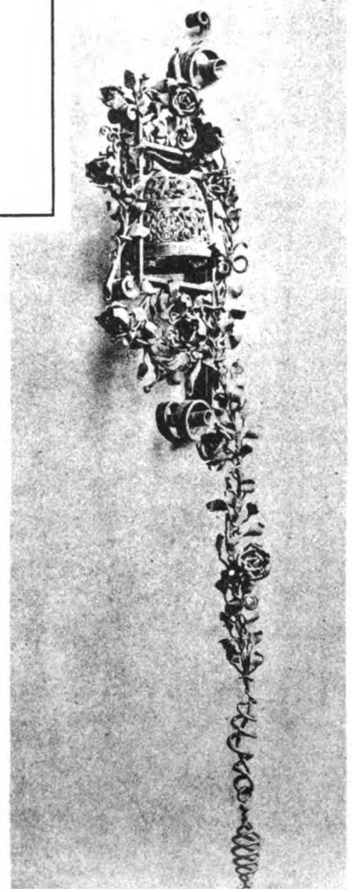

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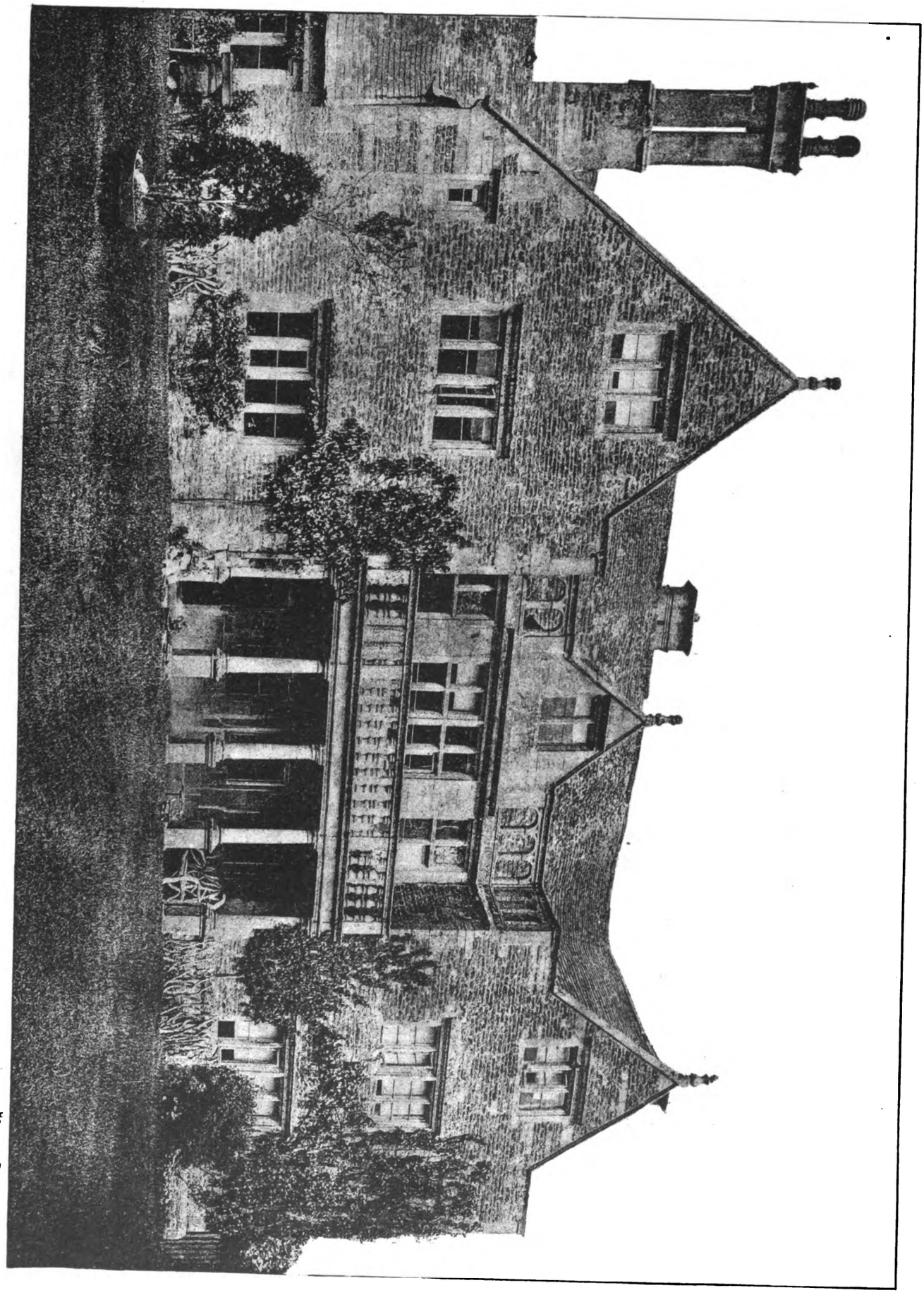

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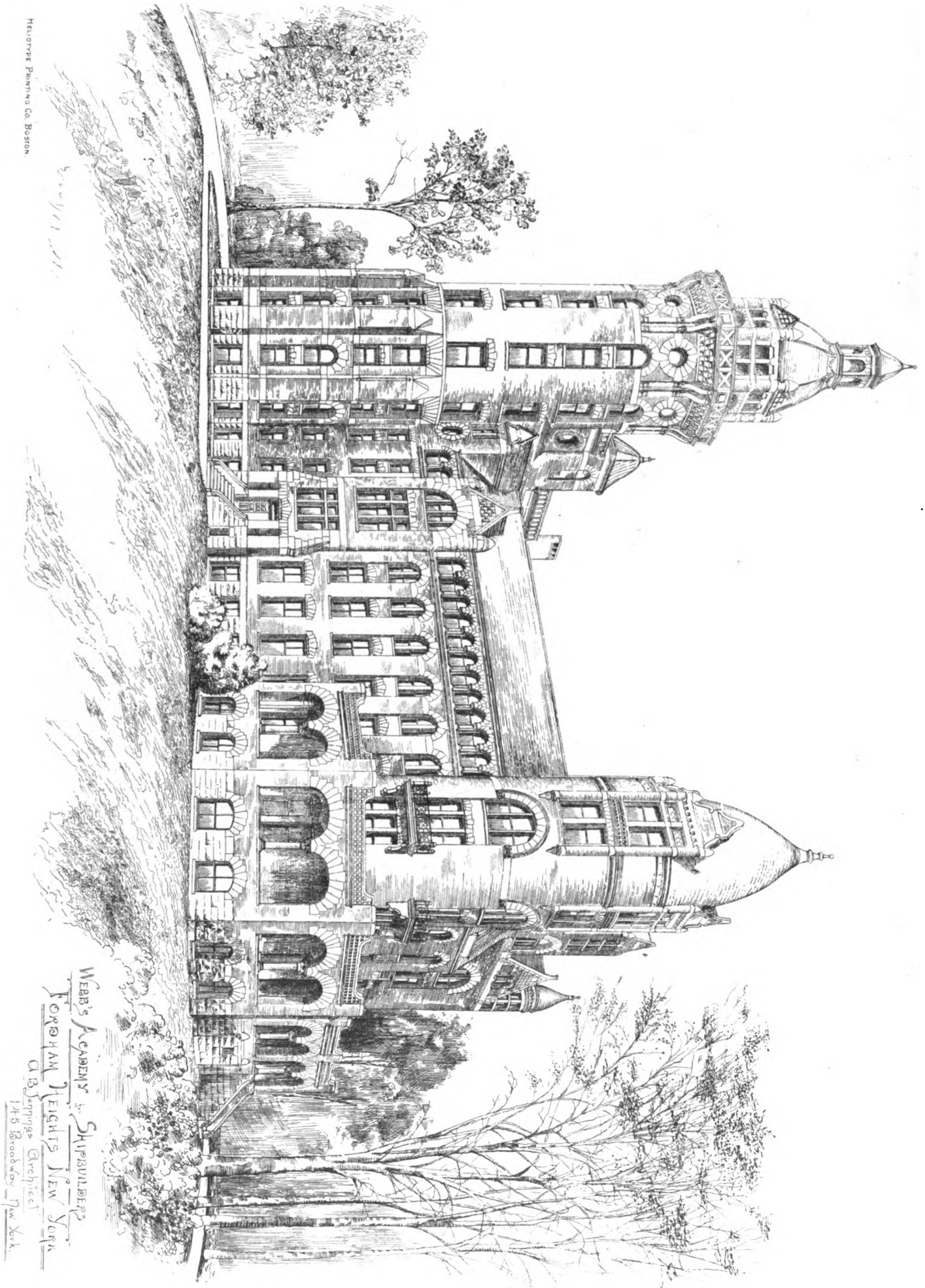

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~North-East View~

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EL DIOS DE LAS TUNAS
This guy was a bad in his day
Tho whom Aztecs Toltecs did pray
For his favors they fought
Nor gave they a thought
That they'd made him themselves out of clay.
Pen and pencil sketches of terra cotta ware
found in graves in "La Huasteca Potosina" Mexico

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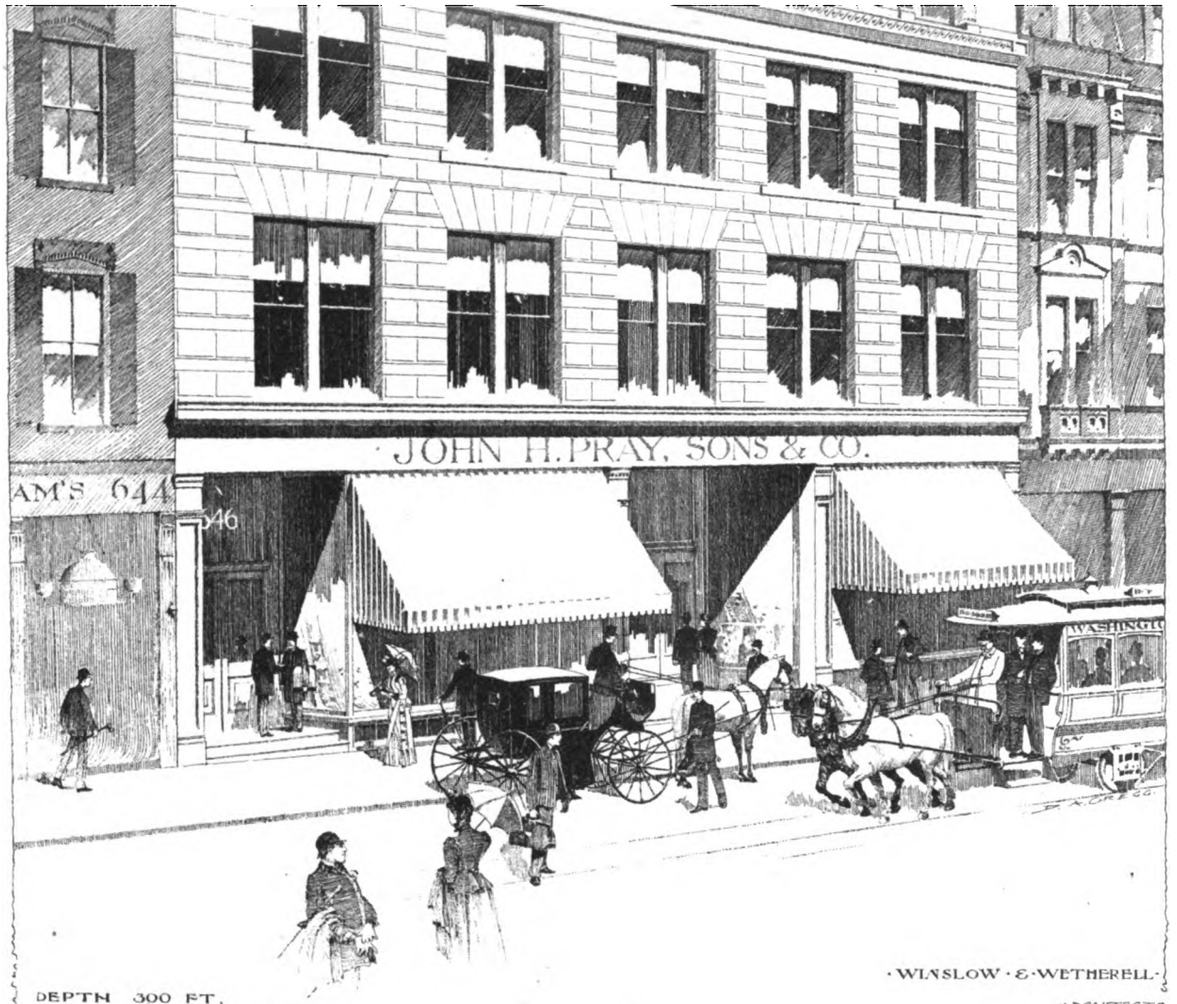

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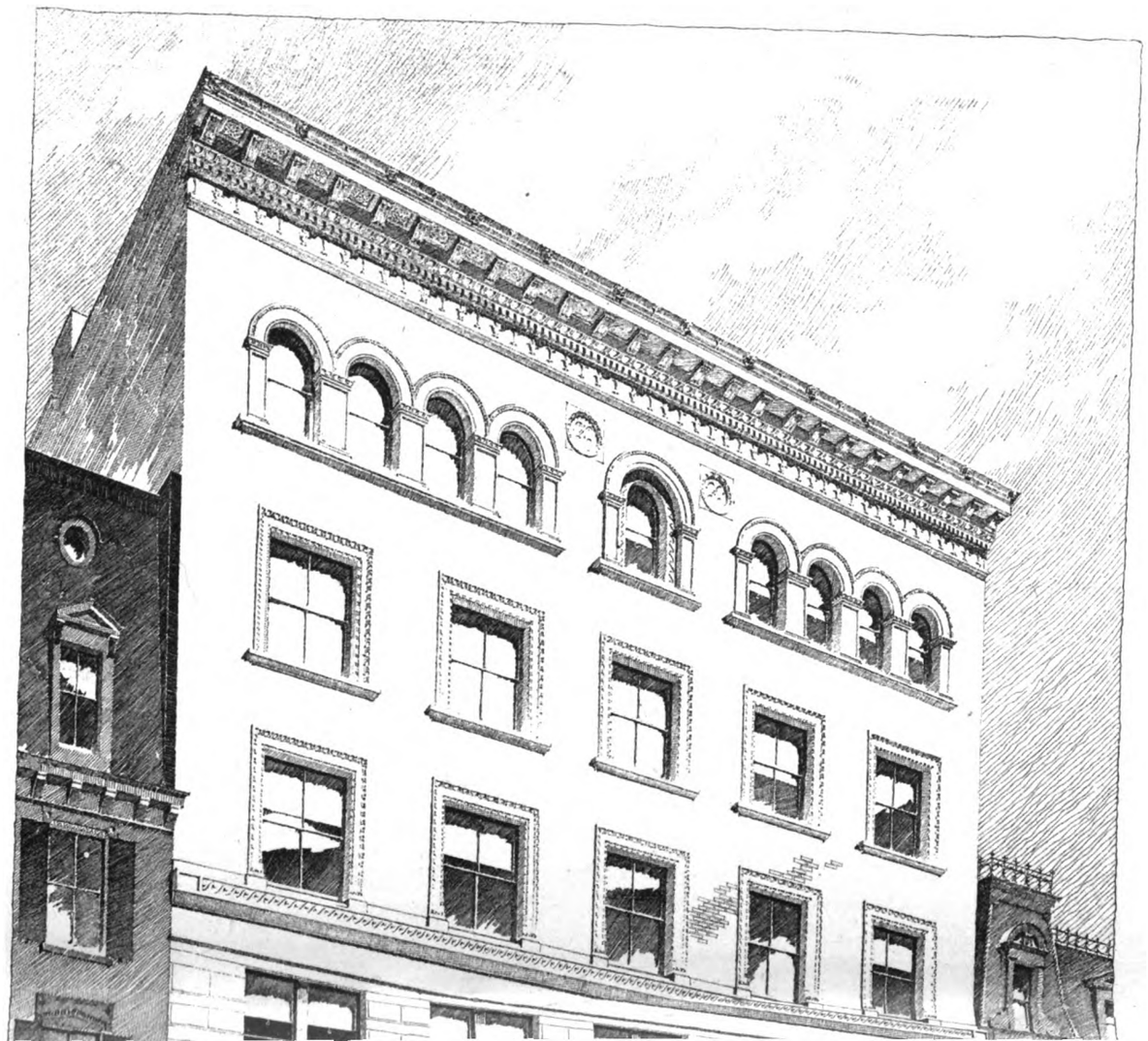

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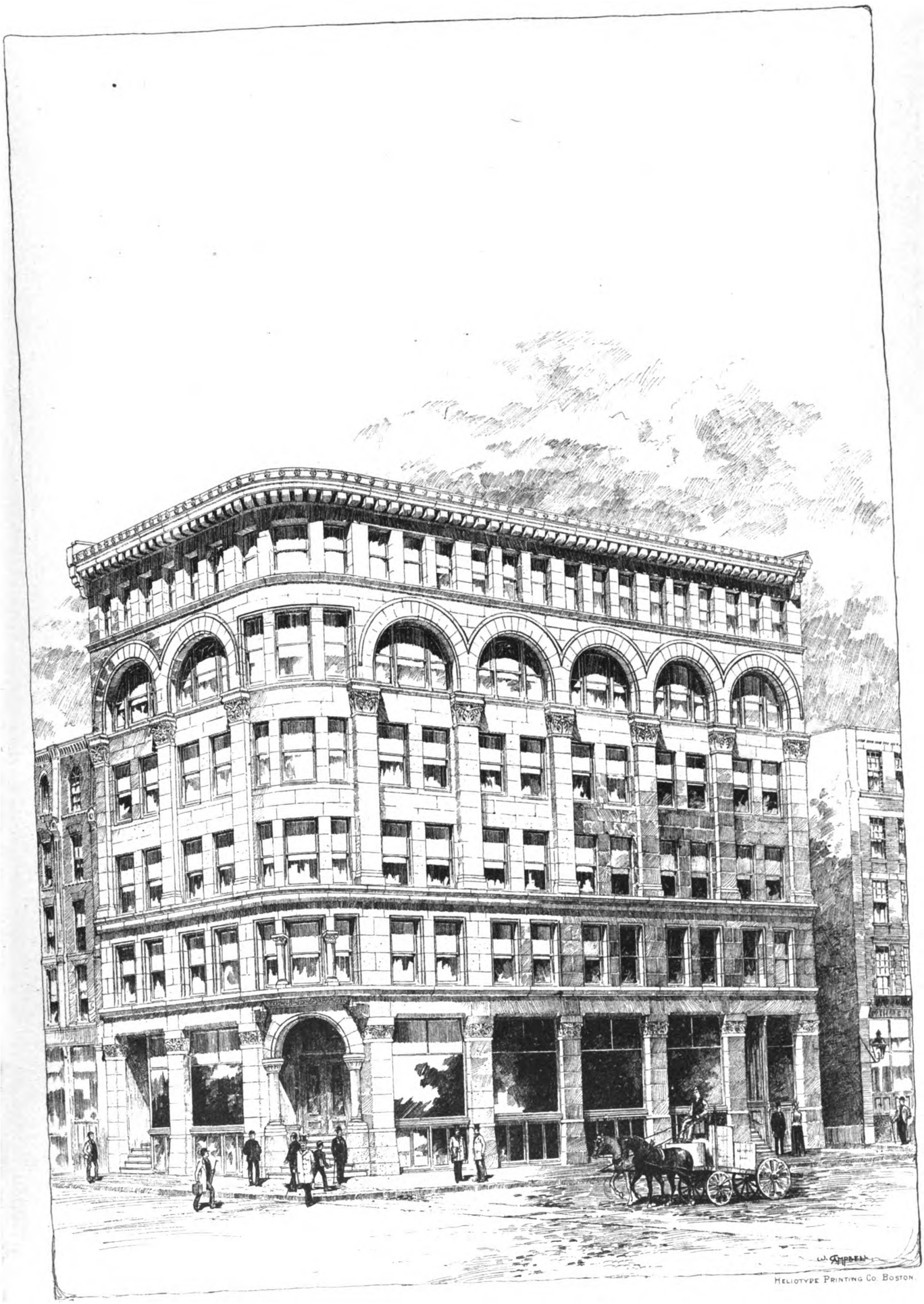

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dependence for artistic beauty is on the octagonal towerlets at their angles of contact; and these do, in fact, modify their ponderous weight by a suggestion of slenderness. Both the towerlets and the spaces of wall between them have been sparsely honeycombed by air-holes, that are used also as putlog holes. A line of sixteenth-century windows in the second story of the façade, has been filled-in and an original row of loop-holes of the third story, partially built up too. But, fortunately for the gable — whose look of greater lightness owes much to the picturesque effect of their black shadows — the *Scharten* or windows of the garret story have been left intact so far as their lower-most line is concerned.

The body of the square tower is terminated by a dog-tooth moulding and band. The towerlets are crowned by a band-moulding and each of their eight faces by a miniature gable; the roof rising behind these gabelets, eight-sided, to a pyramidal point.

The gables that surmount the moulding on the two fronts of the body of the tower are an instructive example of what flexibility constructive forms of an old style possess for modern talent, that knows the new want and has mastered the spirit of existing old forms. Gables! — it was the age of gables; and on the tower, too, a gable must be perched. One can fancy what a problem the requirement was to the architect! If his townsfolk did not know or see that a gable was a thing against all tradition for towers, as well as against practical sense, his learning showed him that it was. But — he could solve the problem! He could retain the traditional in substance, and recast it into the fashionable and new; make a gable in short, out of of a battlement.

We see the result of his stern and skilful project; and its equal must be looked for, in that which pertains to rigid constructive fidelity to a given plan, combined with tasteful adaptations of new decorative motives.

Almost every other gate-tower gable of the time (which was late, the Renaissance having broken in everywhere else save in this north country) was a gable that revealed a filial likeness in its aspect to

Fig. 2. The Stargard Gate.

cathedral models. (See ex. Fig. 2.) Not so with this Friedland gate. Its predominating trait is still military.

The vertical roof-line is divided into five battlements. The central crest is prolonged upward. Its point forms an apex. Below it, on both sides, occur the points of the neighboring crests, in descending lines to the corners; the whole together making the regular triangular gable contour. The spaces between the crests (that appear pillar-like from their height) are three-quarter filled-up and afford room for flat-arched blind windows. Originally this decoration was heightened by the introduction of three vertical rows of *Scharten* within the blind-windows, two *Scharten* coming into the uppermost row, and four in each of the two lower rows. At present, however, these miniature windows are filled with masonry save the four that composed the lowermost row.

The tower possesses artistic properties, as we see; but the conception is still a conception pervaded by a prevailing sense of rugged, determined practicality.

The Stargard gate in New Brandenburg, Fig. 2, allows this conception to prevail only in its back tower. Its outside gate resembles a chapel, and displays Gothic ornamentation in profuse abundance and delicate designs. Nothing suggests its militant office. The ground plan is a quadrangle. The long sides are placed broadside across the road. The walls offer the minimum of plain and massive masonry. Lancet blind windows in groups of four adorn the lower story of the façade, at the right and left of the pointed archway. The broadside of the roof is broken up into gables, edged with crockets and surmounting richly-traceried rose and lancet windows. Pinnacles separate the gables and furnish the close of each of the four corners of the cheerful-looking, tasteful house.

The windows of the narrow end walls and the wall of the court-yard side, furnish the chief light to the interior chambers. The openings in the façade are small stained-glass leads set into small casements, in the middle of the two inner blind windows of the several groups of the upper story.

The typical plan of a Northern German gate includes a postern gate-tower, a court-yard between, and side buildings, or enclosing and connecting walls. (See Figure 3.) After coming through the outer, or wall gate, the passenger found himself within a trap-like enclosure, with a second gate between him and the street of the

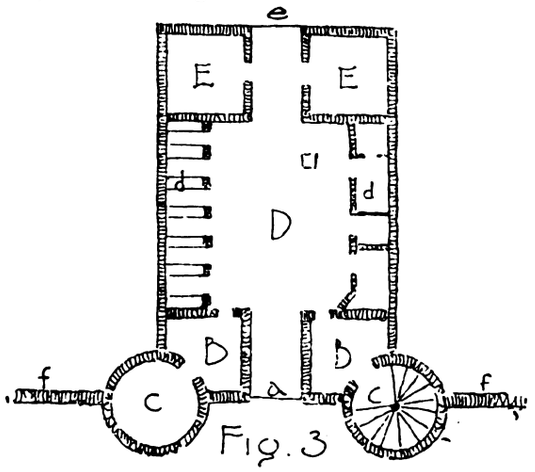

Fig. 3. Typical Plan of Gate-tower: *B.* Gate-tower; *a.* Archway; *c.* Flanking-towers; *D.* Court: *d.* Hostelries; *d'.* Dog stall; *E, E.* Postern-tower; *e.* archway; *f.* City wall.

town. The back or postern tower is commonly loftier than the outside gate, especially in ancient examples, the tower having taken the place in towns of the donjon or keep-towers of hill castles. That of the Stargard gate has been restored, and displays to advantage the further development of the gabled tower represented in Figure 1. The view in the present case is that of the court-yard side of the postern tower, a side that was a common centre for doors and windows to open upon.

The side buildings served the function of guard-rooms, hostelries for man and beast, kitchens, drinking-rooms and prisons. Chambers for suspects, lodgers and the families of the gate-keepers were relegated to the upper stories of the postern house. The upper stories of the side buildings were used as granaries, store-rooms, and perhaps, for the sleeping-stalls of *knechts*, although commonly, the sleeping place for these was in the fifteenth century, where it is to-day, in the stables alongside their teams.

The original iron-coated-gates have been replaced by oaken lattice-work doors, a couple of which exist in a half-ruined tower of the same town and have been photographed for Figure 4. The upper ends of

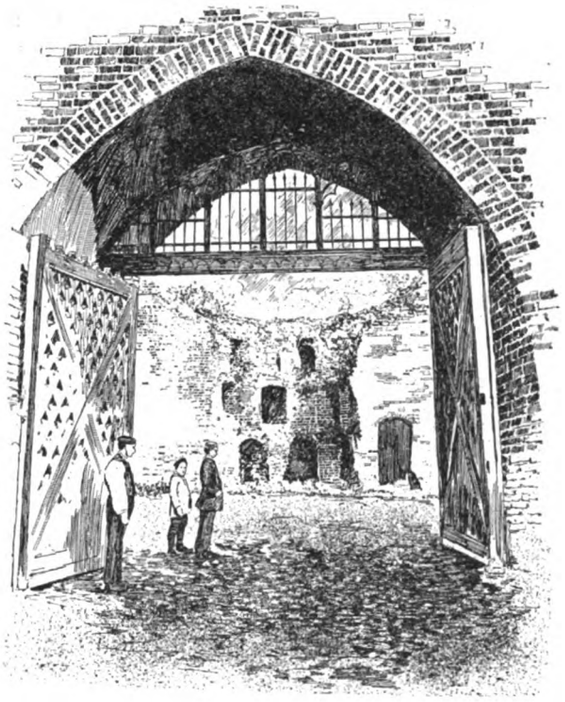

Fig. 4. Modern Gates.

the doors are straight — save for a row of crowning ornaments — and the space left between them and the pointed arch of the gateway is filled out by an iron grille.

The material of all the town-gates mentioned is burned brick, the alluvial plain of Northern Germany offering no natural building stone except granite bowlders and cobble-stones. These latter are taken often for the foundation walls of towers, and the Stargard gate rises from a foundation of such stones.

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But to conclude, we find that the town-gate was a complex structure, consisting of an outside gate and a postern tower, with an enclosed court between. Their original office was defence; their later office control of traffic and travel. According to these offices their architectural features corresponded, developed and changed. A constant, traditional trait was height. Of minor features, one of the earliest was the *Pech Nase* or machicouli, and another, the loop-hole. With the introduction of modern fire-arms the *Pech Nase* fell into disuse. With the introduction of modern traffic loop-holes gave way to windows, and massiveness to ornamental richness of tracery. Gate-towers, finally, are themselves supplanted by mere arches.

Countess von Krockow.

EMMANUEL FRÉMIET.[1] — VII.

JOAN OF ARC. — II.

"L'Incroyable." Frémiet, Sculptor.

"WHY did you make a second Joan of Arc?" I asked Frémiet. "I was influenced by the critics," he replied. "I made Joan larger and the horse finer and it is infinitely better than the first one. The Minister of Fine Arts would not consent to have the first one replaced by the second. Then I sold two copies of the last, one to go to Nancy, the other to Philadelphia. I am delighted to have one of my works go to the United States. I designed the pedestals for both. The price for each was 17,500 francs."

"Will you reduce the second Joan, to sell?" "No, there is not sufficient difference between them to make it worth while."

The *Salon* of 1889 was peculiarly notable for its sculptured representations of the virgin of Domrémy, there being no less than three, two of which were equestrian: one by Frémiet — his second — the other by Dubois, and one standing, by Pézieux. That by Frémiet was welcomed with as general acceptation as the first one had been condemned. Two hundred and fifty newspapers spoke its praise, while a few criticised it severely. The very small number of artists who liked the first in 1873, and have increased in their admiration since, do not like the second. The appearance of these two equestrian statues of Joan in connection with the history of both, that of Frémiet being very unusual, was the starting point of what is at this time a thorough French craze, a very worship of the unfortunate peasant girl; and it is doubtful if any piece of French sculpture has been written about so much as that which Frémiet made to take the place of the first. M. Paul Mantz wrote as follows in *Le Temps*, after a severe and singularly suggestive criticism of Dubois's statue: "It has been known for some time that M. Frémiet was troubled. He had already made the equestrian statue of the Place des Pyramides, and, with that touching loyalty which characterizes his artistic conscience, he feared that he had not completely succeeded. We can to-day reassure M. Frémiet he is the only one in Paris that is not satisfied with his work.

"The 'Joan of Arc' of the Place des Pyramides, a little thin, a little girlish on her enormous work-horse, is one of the most original figures of the time; and if, at first, she surprised a few persons, she very soon won good judges in her favor. We are all in accord in finding intelligent, subtile even, the contrast which exists between the little fighter and the rustic animal that she rides. Whatever was said when it first appeared, the 'Joan of Arc' of the Place des Pyramides is a work of great value, and many of us cannot see the necessity of correcting it.

"But M. Frémiet indulged in some uneasiness; he imagined that he had not told the whole story, and, this dream remaining, he desired to realize it under another form. There is nothing to do but to bow before the preoccupation of a master who is taken up with a certain ideal. I ought to say, however, that these second editions which an author gives to his thought have not always been happy: certain poets, re-seeing in the decline of life the creations of their youth or of their virility, have often made corrections which were weak. So when we heard, last winter, that M. Frémiet was remaking his 'Joan of Arc,' we were for a moment troubled. 'What purpose will it serve?' we said. Happily, M. Frémiet, respecting the first form of his thought, has limited himself to some modifications of detail.

"In its general lines, the character of the work remains the same. The essential change consists in a new type; Joan is less young, more of a woman; a certain robustness has been substituted for the slenderness of childhood; the horse has equally been revised and refined; perhaps the details of the armor have also been subjected to a few corrections. To fully determine these points, the two images should be placed side by side and undergo an analytical comparison; but the outline, the moral impression, is not sensibly different. There is something lacking, however, something that we love in the Joan of the Place des Pyramides; it is the contrast, very visible and very intended, that exists between the frail child and her vigorous horse. Really, we do not see in what respect the second edition of the equestrian statue of M. Frémiet will be better than the first. We shall without doubt consent that the new model shall be cast in bronze and placed somewhere, but it would grieve us if the statue in the Place des Pyramides should be dethroned in favor of its elder sister. M. Frémiet would be cruel to deprive us of a work in which he has expressed everything, and of an image that we love."

Whatever might be the merits of the new model of Joan, there were many objectors to its taking the place of the old one. Fearing that such an event might happen, a number of the most eminent artists proposed petitioning the Minister of Fine Arts against it. On this point, M. Paul Leroi, in *L'Art*, thus wrote: "I should reproach myself, if I kept silent in regard to a master like M. Emmanuel Frémiet, who has never had the high reputation for which he has the solidest titles, and for whom I have always professed the liveliest and most respectful admiration. Go to the Universal Exhibition, look at the 'Age of Stone'; this superb bronze will immediately justify to your eyes the rank, without rival, to which such a talent has so many rights. And it is precisely for this that one would fail in doing him justice if one did not tell him the truth. M. Frémiet, to whom French art owes one of her most perfect statues, a monument which is at one and the same time a model of elevated thought, of taste, of delicacy inspired by profound knowledge, the exquisite 'Joan of Arc' of the Place des Pyramides, M. Frémiet has listened to critics to whom it is regrettable that he did not remain deaf, and his extreme conscientiousness, the nobility of his character, have led him not only to begin his work anew, but to take the resolution of replacing it at his own expense; I cannot say strongly enough that nothing could honor the man more. But this act of artistic probity, admirable as it may be, is one that must be deplored. I don't hesitate, on my own part, to supplicate M. Frémiet to renounce his intention of casting in bronze his new creation, whatever may be its merits. The equestrian statue which, justly venerated, reigns on the pedestal in the Place des Pyramides is too meritorious to be taken down. To replace it by another would be a fault that all the sincere friends of M. Frémiet's talent would be desolated to see."

And M. Ernst, in *La Paix*, wrote: "The 'Joan of Arc,' is the most interesting work in the *Salon*. Was Frémiet right in making a new one. I don't know. Anyway, there is no more beautiful spectacle than that of a master severe with himself, jealous of perfecting his work, and of bringing forth a new beauty. In the present version, Joan is a larger woman. More of a woman, less boyish; her virgin neck fills out her steel corset more. Whatever may be my admiration for this Joan of Arc, I cherish a preference for the other one, for that little peasant girl dressed as a warrior, that child of the people, so simple and so true, perched upon the high saddle of her formidable steed. She, to me, is the real frail and tragic adolescent; the humble saint, elected by God to save her country."

But it took seventeen years to bring about this change of sentiment in favor of this statue.

The appearance of the new "Joan," also reawakened the complaints against the first, and they embraced suggestions, not only as to how the subject should be treated, but that it should not be represented at all. The matter is sufficiently interesting to warrant the repetition of some of these criticisms. And then, too, they will give the reader an idea of one phase of French writing on art. An "Old Parisian," says, "Instead of this vulgar little idiot of an Alsatian broom-pedler, better fitted to wear a baby-cap, or the bee-hive bonnet of a workwoman, I wish to see the liberator of France with the poetic traits of Camille, Chlorinde, Bradamante, or Penthisilie. Since seeing this object, I have dreamed that I saw the Joan of Arc of the Place des Pyramides riding the donkey which Voltaire placed her upon, and going at the head of a band of *petroleuses* to set fire to the Tuileries; whilst my Joan of Arc, riding horseback on a white horse, child of the sun, arrived at the head of the Army of the Loire, like Bradamante; cutting and thrusting with her glittering sword, she delivered Paris and obliged the Prussians to raise the seige."

This from M. H. Thurat, in the *Revue des Beaux-Arts:* "Let us be frank, like the criticisms! *Our school of sculpture* — this famous School which is the admiration of all who are endowed with pictorial sense — *our school of sculpture* that is set up, with pride, in its beautiful attitudes, in contrast with the other school, and which throws into an adorable lyrism of adolescence whoever starts in the career of the *Salons* — *our school of sculpture* is dying, yes, madame, she is dead!!! Weep, Nymphs! I ought to frame this necrological article in tallow. I prefer muffled drums to funeral orations. It is a tourney: Joan against Joan, *Frémiet* against *Dubois!* Bad against bad! And that occupies the grand avenue, the grand nave! That is to say, a total of eleven yards of sculpture in length. You will see what will remain of it!

"I am in the habit of thinking and writing exactly the contrary from what the sculptors say of their comrades, and entirely opposed to what the numerous Albert Woolfs print. That is a rule that I got from a certain wise man who had some weight in his time.

"The number of Joans of Arc is, like the sots, infinite. The Pucelle can no more be made than Christ. They are the figures that ought not to be touched, under pain of attempting the ideal; this sin against the Holy Ghost; this mysterious sin that attracts all the thunders and which none can remit. Make patriotism in plaster, it is difficult! Compress a people in a figure, it is hard! If, at

[1] Continued from No. 798, page 28.

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least, we had some impression of the virgin face! Nothing! If only the end of the nose! a corner of the lips! a plane of the forehead! a hair! *one of thy hairs would be enough.* But nothing! Nothing but the big girls of Lorraine who fatten to-day in the same pastures as in the time of Jehanne! If I were in the place of Dubois and Frémiet, I should simply go to the suburbs of Domrémy. I should walk around in the fields: looking after a shepherd girl who turned her eyes towards heaven at the hour of the Angelus; not yet developed, but eating weeds, if need be, to purge the blood; a beautiful rustic creature who turns her passionate warmth into white visions: heavy feet; awkward hands; big heart, making love to some being in the air; and with a virgin womb! Eyes that look for a god in man! A daughter of the land of Gaul fitted with a sad sun; thinking of impossibilities! Saying to herself: 'The King of France is a great shepherd, and France a great sheepfold. The wolves must be killed; must they not! There is no time to be lost.' A daughter of the Druids! Perhaps a soul that has been sacrificed by those bloody old ones! Who knows?

"If I were a sculptor, I would take this model and put it on a horse of that country, knock-kneed, with a long head, a big swelled belly, and bob-tailed. Very surely — in spite of the legends of the good writers — I should not have put her fresh and perfumed body in an iron corset; and much less sealed up her dumpy legs in a harness. Bad would it have been for me not to think about the hands that speak! A sword that points to heaven; a flag fluttering in the wind, what does all that say? No more than a weather-cock! Against this! tell me of two beautifully sculptured hands, pressing a heart doubly beating with the terrors of battle and of evil desire.

"This is to say that the Joan of Arc of Dubois and Frémiet is yet to be made by Rodin, if not by Baffier. I shall commence my *Salon* articles when the big ones have done theirs: to see a little what they will do."

It is interesting to note that this kind of criticism, that advocates, with the most absolute truth, the facts of local nature in the representation of historic characters, brutally if necessary, but always truthfully, came in in force soon after the appearance of Rodin's works, "The Age of Brass," "St. John," etc. The classic, or old school of sculpture, represented by the École des Beaux-Arts, has always been against Frémiet, just as it was against Barye, and all the vital men of French art. Against them, because they went to nature for their inspiration. For the same reason the School has fought Rodin, and will always do so. It is amusing, then, to see a writer, who adores the latter because he depends on nature, attack Frémiet because he neglects it.

Another number of the art-journal just mentioned contained a long article, from the pen of a well-known Parisian writer, whose literary name is "Ignoto," on the general subject of the various representations of Joan of Arc, in both sculpture and painting. It is well worth repeating, but fearing that it might weary the reader I will only give a few extracts. After very justly exposing the weak pretention of the over-estimated Joan of Bastien-Lepage, the writer alludes to the barbaric vestiges of the real appearance of the Maid, taken, he affirms, from old writings. "Joan was large and well-rounded and well-formed, she was of tawny complexion and had black hair." "That is the type of our valiant and free peasant girls who, like the Gauls, their ancestors, have never failed in the hour of danger or of suffering." On this point there is a decided difference of opinion, for others affirm that "she was, until her death, a child both weak and tender, whose whole strength lay in an over-excited mind in regard to the affairs of her afflicted country; that she could hardly draw her sword from its scabard, or wave aloft the banner of France." Then the statue of Dubois is taken up. "Does it suffice, M. Dubois, to surround yourself with so much mystery, to pass ten years of your austere life, in laboriously giving birth, as they say, to such an untimely offspring? Where have you found your inspirations and how is it that you have not seen, during all that time, that you were outside of your subject? It must be believed that you are as ignorant as a painter, which is not true. Has your confidence in yourself made you blind? Neither the gesture, the armor, nor the type of Joan are happy.

"It is too unlucky! Ah! this is what you think of our young and virile heroine: a stiff manikin, starched up and broken-backed, bent-double. Really I am sorry, being generally an admirer of your fine talent, for this manikin, articulated like a lobster, cannot keep itself in the saddle an instant; it would fall at the first gust of wind, at the first movement of the horse. And the action of the uplifted arm, whose hand, so unused to such a task, holds a useless sword, here out of place. And this movement of the head, so coquettish, so puerile that it is babyish; always the legend of the Jew child David! Let us be human and French! Why in the devil's name not be so? Joan was not a sky-lark; she was a bouncing girl, do you hear it; this female leader, though pure, was not prudish, she had the gayety of the strong and the fury of our race! You will not make any one believe, M. Dubois, that you took your head of Joan from the shoulders of a Frenchwoman. I know the soft girl that served you as a model; she was an Italian! You ought to have gone to the plains of the Isle of France, of Picardy or of Champagne; you would have seen our young peasant girls, handsome and well-formed, swinging the scythe with ease or following the plow with joy; they would have given you another idea of the valiant Pucelle. As for the horse, it is a secret to no one that you did not make it. I will not not name your modest and learned collaborator. I regret it, but I shall imitate your discretion: it is right, at the same time, to render justice to an artist of such rare merit; for the horse is first-rate, very much better than that of the *animalier* Frémiet, of whom I shall soon speak. But there is one thing that annoys and troubles me: it is his movement. A specialist tells me that one part trots and one walks. I think he is pulling. As he is not pulling, he gives the effect of falling head-foremost. Is this the fault of your timid and anonymous collaborator or your own? Did you oblige him to commit so enormous an error, or, if he did it himself, the entire responsibility should rest on him by his signing the work with you in common. Without doubt, you intended the horse to walk, as the rider could not endure any other movement. If he trots, why does he do it with only half of his body? An unsolvable problem. Why are his eyes dug out? I know; because the plaster-cast known in the School under the name of the 'Horse's head of the Capitol' are like that because the barbarians stole the eyes of precious stones. I am, like yourself, a passionate admirer of the antique, but I don't believe in copying their degradations. Do you?" This criticism continues concerning this statue until every part has been raked over in the same caustic way.

Then he begins with Frémiet. "I don't reproach the character or type of Frémiet's horse: but, how unlucky, it is so badly executed! Where did you find this model of consecutive humps, M. Frémiet? Model false and monotonous! How is it, that you, a

The (second) Joan of Arc. Fremiet, Sculptor.

master specialist, have not observed the law that was Barye's strength: the alternation of high and low planes, always varying in form and volume, and which by their indirect situations properly produce the sweep of the figure; the sweep, M. Frémiet, that superior quality without which it is impossible to be a good draughtsman, or a good sculptor, even if one be an *animalier*. And what a singular idea to put one of your horse's feet so unnaturally on the edge of the plinth! Nor is he very happy, this horse, in his common movement! And your Joan of Arc! Why did you make a German girl? I have been told that you went to Lorraine to make a series of studies in order to find the type of your young heroine. What matters it anyway! It was a real young French girl that ought to have been made. You are very much deceived, for this heavy face is not a Lorraineer, nor even an Alsatian, but a Bavarian. I defy you to put black hair on such a head! She has certainly blonde hempy hair, this beer-drinker with her frothy, falling lips, and a forehead too narrow to contain the brain of one of the greatest geniuses that ever lived. Believe me, M. Frémiet, more tact would

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have better directed you. What need had you to remake your Joan of Arc of the Place des Pyramides. I can understand that this mediocre work weighed heavily on your mind, but you ought to have made a better one. It is necessary to tell a different story; but that requires a thoroughbred artist, and you are nothing but an ingenious one. Rogue, you are as the most roguish of your contemporaries; but on this occasion you needed faith, and that of the modest ones. It is not sufficient, believe me, to make the virile Apollo of the *Figaro* cry out the praises of your new Pucelle. Every one knows that this modern Aretino, who has less than the little literary value of the old one, is absolutely disinterested in whatever he does, and they ask, in view of your work, by what charm have you disinterested him to such a degree!!!" The critic continues by examining the armor in the same style as above, and closes by saying that "Joan is yet to be made."

Soon after the completion of the second Joan of Arc, the city of Nancy, in the department of Lorraine, expressed a desire to possess a copy in bronze, to be erected in one of its public places. To attain that object, two committees were formed, one in that city, the other in Paris, for the purpose of soliciting subscriptions. The Paris committee was composed of some of the most eminent artists, men of letters, public officials, etc. A little over three hundred dollars were raised. Fearing that the project would fail, a public-spirited citizen of Nancy, M. Osiris, offered to present the statue to the city. It was unveiled on June 28, 1890, in the presence of a large concourse of people, including representatives of the Government, and many distinguished citizens. The occasion was made a general festival, literary, dramatic, and musical societies taking prominent parts. Speeches were made, songs sung, and plays acted, all in honor of the poor girl who had been practically forgotten for four hundred years. The selection of the site for the statue is not the least curious item in the history of the present interest in the subject. The city authorities did not know what to do in presence of a wide division of opinion in regard to where the statue should be placed. It was finally decided to carry the pedestal to the different localities and see how it would look and this was done, a crowd of citizens following. The majority voted in favor of a small square called "the Place Lafayette," and there the pedestal was left, to be, in due time, crowned by the statue.

This locality was so small that the mayor, in his proclamation stating when the inauguration would take place, and inviting the citizens to make the occasion a joyous one, was obliged to apologize for not asking more people to attend, because there was no room for them.

The house in which the heroine was born was purchased sixty years ago by the Department of Vosges, and classed in the list of "Historic Monuments." On his visit to Nancy to attend the ceremonies of inauguration, M. Larroumet, Director of Fine Arts, went to see the house, and, finding it in anything but a satisfactory condition, bare, neglected and covered with hideous ornaments, began at once to negotiate for its purchase by the government, for the purpose of making it a well-kept museum of relics pertaining to the illustrious personage who first saw light within its humble walls.

As the press truly says, "The hour is to Joan of Arc. From every part of France there go to her voices less mysterious, but louder, than those she believed she heard in the little garden at Domrémy. There is not a hamlet from the Vosges to the ocean that does not claim her as its own. She symbolizes national resistance and national resurrection. The worship of Joan of Arc is a new and recent one, much better than many others. It is the worship of patriotic devotion, of duty and of sacrifice."

Of the many ways of expressing this new religion, having for motives money-making, jealousy between Church and State, personal aggrandizement and local pride, the spectacular representation given at the Paris Hippodrome was altogether the most imposing and popular. This pantomime embraced illustrations of Domrémy, the various scenes and incidents characteristic of the times in which Joan lived, the chief events of her life, and closed with the last tragic one, when she is burned at the stake in the square at Rouen. There she disappeared in flame and smoke, and from these mysterious elements there rose a gilded, full-sized model of Frémiet's statue. On its appearance, there assembled around and on the base of the pedestal all the five or six hundred variously costumed persons who had taken parts in the previous scenes, and representing the different departments and cities of France. A military chant was sung amidst the impressive plaudits of the spectators. This spectacle had a great success. There were many very touching moments, interesting scenes and pleasing representations, although the acting of Joan was somewhat stagey. A circular screen of wire gauze fourteen yards high ran all round the arena a few yards in front of the lowest row of seats. Upon it was painted a copy of the square at Rouen, and through which the spectator saw the houses and people on the opposite side, an extremely interesting sight. A national monument will be erected to the memory of Joan, and inaugurated in 1892. It will consist of a statue showing her as a peasant.

The most significant tribute paid to Joan is the decision of the Superior Council of Public Instruction in granting its approval of an annual holiday in all the public schools in her honor.

With the coming of this extraordinary manifestation of remembrance, there has also been awakened new interest in her life, and, as one result, the revealing of new and important facts. The latest statements in regard to the death of the Maid throw the entire blame upon the French clergy, and not, as has been long believed, upon the English. It is stated that the Bishop of Beauvais placed upon the pile that burned her a plaque, upon which were these words: "Joan, called the Maid, liar, schismatic, blasphemer of God."

It was stated in the beginning of the short history of Frémiet's first statue that the face of Joan bore a close resemblance to his youngest daughter; it may now be added that the face of the second Joan is a near likeness to the same lady, now the wife of M. Fauré, the choir-master of the Madeleine Church and a composer of high merit. The model who posed for the figure of the first Joan was one of the most elegant members of that trade ever seen in Paris.

While this statue has gradually won admirers since its erection, it is still as true now as it was at that time, that it is most intensely hated by a certain class, whom Taine denominates as "old-fashioned men" — men who cannot bear any individuality not in harmony with the staid, undisturbing placidity of the old school of sculpture.

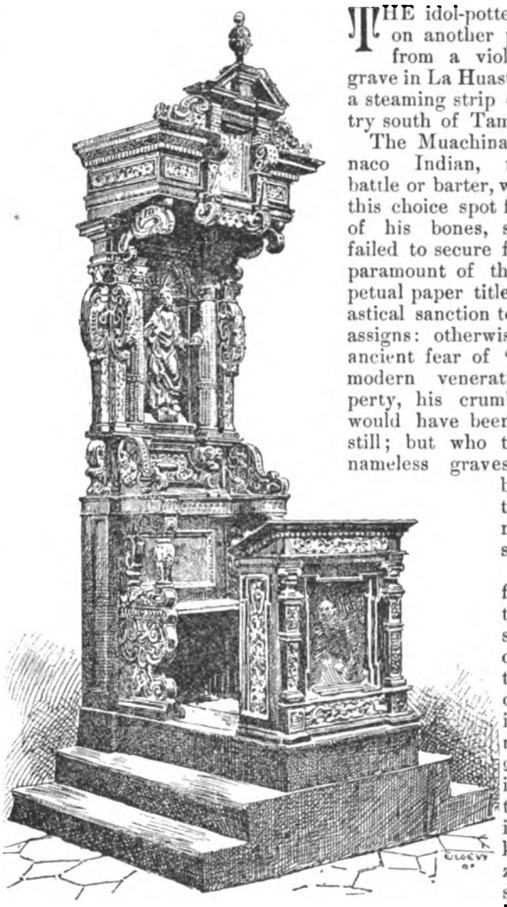
They accuse Frémiet of levity, almost frivolity; of a lack of grave respect for what they understand as the antique. This class also includes those who hate by temperament. The existence of such a nature as his is, to them, an unbearable thorn in the flesh. One of them has himself made an equestrian representation of Joan, the artistic value of which has not yet been decided. And another has made an equestrian statue of a different subject, which has escaped both praise and blame.

Speaking with the sculptor about the statues and pictures of Joan of Arc, he said: "There is only one, that by Rude, in the Louvre."

T. H. Bartlett.

(To be continued.)

NOTES AND SKETCHES FROM TOLTEC-LAND.



Bishop's Stall. XVI Century.

THE idol-pottery illustrated on another page was dug from a violated mound-grave in La Huasteca, Potosina, a steaming strip of coast country south of Tampico, Mexico.

The Muachinango, or Totonaco Indian, renowned in battle or barter, who preëmpted this choice spot for the repose of his bones, short-sightedly failed to secure from the Lord paramount of the time a perpetual paper title, with ecclesiastical sanction to him and his assigns: otherwise, what with ancient fear of "bogies" and modern veneration for property, his crumbling remains would have been undisturbed still; but who to-day, honors nameless graves, or mouldy bones, unless they be revenue-producing, saintly ones.

The hideous figure squatting in vacuous solemnity — one of the multitudinous gods of the vanished races of men, who gained renown in proportion to the fear they inspired — king-like blazons on his person the spoils his force, or fraud had won, and, still king-like, wisely makes his teeth warders of his imprisoned tongue — knowing that the imagination of the dupe is more eloquent than the inspired words of a prophet. He is made of baked clay in black glaze, which years have made soft and porous like the bones he failed to guard from the spoilers. His head-dress and arm are ornamented with the fat leaves of the prickly-pear, the much-eaten fruit of which, as a pendant, is attached to a polished stone crescent that hangs from his scrawny neck; so I have dubbed him "Dios de las Tunas." It will be noticed that epaulettes are quite ancient; in this case, probably they were used to ward off club blows, rather than to tickle the vanity of the wearer. On knee-pan, shoulder and brow, he has disks of polished obsidian; while his breast is adorned with stars; or, did the artist intend to represent a woman? Beneath his belt he has secured a whorl of tubes, perhaps a musical instrument, or simply a fancy of the artist, for its centre is a hole communicating with a hollow interior, from which Toltec devotees may have fancied

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they imbibed the water of eternal life. Altogether it is a funny figure in spite of, rather than because of, its inane dignity and solemn pretentiousness.

The vessels that flank the central piece are likewise of burned clay; one has a puffing face eloquently expressing the idea that it is full to bursting. The contents of the other are guarded by the grinning face of a monster. The spout to the vessel is suggestive of tea, of which there are various kinds used by the dwindling remnants of the ancient races. Almost, the time has come when some broken pottery will be the only vestige of this vanished race. Millions have come, through slowly circling years, scratched the ground for daily bread — and gone, trooping, shadowless into the past; while we, with the old perennial vanity, sing in myopic bliss of imperishable renown — of everlasting fame.

Conquering peoples once zoned the globe where we find to-day, perishing races, burrowing amidst stupendous ruins. In those days monster idols represented the living revengeful gods, their ruined altars and battered trunks may still be traced through Egypt, Syria, Ceylon, India and China, and scattered over the islands of the Pacific, leading to the scenes of their latest power in Central America. The seat of empire has moved northward since, and, urged by the burning sun still continues moving. Evidently, climate is the cause of the birth and extinction of races and it seems certain that the flower of Central American civilization did not bloom beneath a vertical sun, neither, can another take root there under such a condition. Four hundred years of Christian teaching (Catholic Christianity, it is true, but why should the kettle call the pot black) has made the modern Mexican "peon" altogether inferior to his forebears of a thousand years ago. To-day, he could not make a calendar stone, or turn out, without iron, a perfectly polished jug from obsidian rock, which is harder to work than flint; he could not build the Palenque Palace, or organize his fellows to erect a pyramid or mould one of the little clay heads that are found scattered in thousands on the sites of ancient cities. He no longer plasters the walls of his hut with imperishable mortar, nor floors it with concrete; even his inseparable companion, the "*sarape*," is a shoddy production compared with those of quite *recent* times. What force is there, potent enough to vitalize a dying race? When the environment is unpropitious, its doom is as certain as that of snow in the sun.

As one views the figures here reproduced, which were evidently finished with nice care by a plodding artist, they woo imagination to lose its hold on the prosaic present, dreamily drop into the abysmal depths of the past, and synthetically reproduce from erratic deductions and vague imaginings the ancient worker plying his daily task, doing well or ill his life's work, which, to-day, dug out from ruins and rubbish, attests the skill and patient toil of the nameless artist. He lived in a mud-hut with lime-washed interior, relieved by fanciful designs and mathematical patterns in ochrous earths; the floor was of a lasting concrete, made of comminuted pumice, or volcanic tufa, and clay. The doorway was narrow and the mud roof low, making of the interior a dusky, cool retreat from the glare and fierce heat of *siesta*-compelling noon. In the wet corner, where the wife sprouted and ground the corn for the perennial "tortillas," he kept his stock of clay to ripen. The walls of his hut sloped outwards, so that he could recline comfortably when drinking "pulque" with his convivial neighbors. He fashioned niches in the walls, in which he dried his tender clay creations, or stored his food out of reach of the dogs, for, like unto ourselves, his vanity was flattered by the interested friendship of the servile, vermin-breeding cur. One can fancy him sitting on the floor in the doorway, his bare limbs the color of the clay in which he is moulding the ill-proportioned phiz of some disturbing neighbor, thousands of which are still found where the iron-clad sticks of his dwindling descendants scratch the soil made fertile by the dust of the idol-makers and pyramid-builders.

He could hardly have been fanatic in his idolatry, for the objects of his worship were multitudinous. The large ones he elevated on altars, the small ones hung on his breast, probably on the ever-vital principle that, if the gods were powerless, little harm was done, while if powerful, it was good policy to be on the right side. Our artist in clay lived his little day, with what result? Who can say? With much labor wearied — for very likely he worked for the priest-craft — he laid down his tools and died. Yes, he died when he dropped into idleness, for there were no paupers in those days; those likely to become such were sacrificed to the gods. Our artist's contemporaries fashioned colossal images out of blocks of feldspathic porphyry by what means? "*Quien sabe?*" Perhaps, along with head-dress, sandals and hieroglyphs, monster idols, pyramids and cyclopean architecture, they likewise inherited tools from Egyyt or some common ancestral race. Like a pest, the malignant shadow of a dominant priesthood overspreads the past, and still its bane is felt wherever are found the stupendous structures in whose mysterious depths they lived, lied, died and were buried; where they evolved codes and laws *divine*, that warped and vitiated the lives and sapped the manly stamina of their credulous dupes, till gods, priests and peoples, hosts and parasites, sank together into utter degradation.

What more pitiable than the disintegrating image of a god deposed from his fearful throne in the minds of men! Once a horrid incubus that strangled every new-born aspiration and devoured the children of liberty; now a battered idol, uncouth and ridiculous, whose eyeless sockets the children of a new day and new *fetich* mutilate with impunity and wonder over with Pharisaic pity, bemoaning the degraded worshippers of his fallen majesty, who, compared with their modern, gilt god, was but a petty potentate, for always, everywhere, one's own God is the only true one.

The clothes worn by these ancient idolaters consisted of a body-cloth and sandals. The cloth was woven from the fine fibres of the maguey-plant, the dyed threads forming tasteful patterns, the colors of which, on pieces preserved in the tombs, are bright to-day — as bright as unwashed modern prints. Half a gourd, painted in brilliant colors, served to fend the sun's piercing rays from the part of the head least protected by their wiry hair — black, of course, and like the mane of an old lion bleached at the points. Sometimes a square of cloth, oftener a load, protected the head. In rainy weather they thatched themselves with palm, aloe or other leaves, which, providentially, grow where it rains much. Very probably, the bugbear of the life of the small and large boy of those times was pyramid-building. The men were "bosses," priests, soldiers and tillers of the soil. The women ground the corn and helped the boys, for they wasted no time dusting, clear-starching or sewing, for *their* garments, too, were all in one piece, and that not cumbersome. They must have worked, "packing" materials for generations to complete some of their structures, and the fact that these were built proves that they had an army of drones to support. One is tempted to believe that, like the ant, once started working, they could not stop till, like the monster turtle of fossil fame, they fortified themselves to death.

N. DALMA.

BOOKS AND PAPERS

SEVEN years ago we wrote in approbation of the "*Sketch-Book of the Boston Architectural Association*" with as much warmth as a very genuine feeling could produce, and expressed the hope that a second number might — not too soon — make its appearance, but we were far from believing that nearly eight years would pass before the second portfolio of sketches should make its appearance. We cannot believe it possible that this long hiatus has been caused by a failure on the part of the profession to signify appreciation of the first portfolio in that solid commercial manner which is really more gratifying to the responsible projectors of such undertakings than all the flattering words that can be said or written — even if prompted by the utmost sincerity. To be sure, the Boston Architectural Association passed out of existence shortly after the appearance of its first and only publication, but the Boston Architectural Club, its revised and enlarged successor, has been in existence for a number of years, and it is not easy to discover why this first "*Sketch-Book of the Boston Architectural Club*[1]" should have delayed so long in making its appearance, as the delay has in a measure lost it the advantage of the prestige which the earlier publication seemed to assure.

It looks as if there were more in a name than many people are willing to believe. The present organization is essentially the same in character, purpose and membership as the earlier one, and yet, seemingly, the mere change of name has apparently occasioned this delay of eight years in preparing the second portfolio of the series — for in everything but the name the second portfolio is identical in character, size and make-up with the first. In fact, this great similarity is one of the few grounds we have for any fault-finding. In the last eight years many improvements have been made in the reproductive printing processes; yet advantage has been taken of none of these, but the reproductive method employed for the first portfolio has been used in the preparation of the second, and not only this, but it has been used with less success and discrimination, so that many of the plates do not have the great delicacy which was one of the distinctive charms of the earlier publication. The responsibility for this difference lies partly with the editing committee, of course, but mainly with the firm who did the printing.

Very probably, too, the deficiencies are chargeable to that peculiar and unreasonable feeling that most draughtsmen and artists have, that there is something sacred and unimprovable about their own work which forbids that it should be touched-up and adapted to the requirements of printing processes. It is an amiable and comprehensible weakness, but it is one which, if yielded to, will inevitably and needlessly depreciate the value of any published work. The maker of the sketch will look at the imperfect reproduction of his sketch with loving eye, and will find that there has been little loss, for his memory and imagination will supply what has actually disappeared; but others will look upon it merely as imperfect work, and will condemn the haste and inaccuracy which has accomplished only such disappointing results.

A few examples will explain our meaning. Here is this tomb at Avila, with its pagoda-like canopy, which is unnecessarily coarse because the photographer timed his negative for one set of lines and had to let the others come as they could. The result is that the plate has none of the delicacy of Mr. Walker's usual work — although the delicacy presumably exists, to a degree, in the original. A little

[1] "*Sketch-book of the Boston Architectural Club.*" Issue for 1890. Boston. R. Clipston Sturgis, Secretary.

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time spent in bringing the lines of the original to an average photographic equivalency would have vastly improved the result and probably would not have hurt the original. This plate, too, is one upon which the printer used such refinements of his art as happened to be familiar to him. Here is another of Mr. Walker's plates that suffers through some one's ignorance; this sketch of St. Ouen where the central tower is shown as attempting a game of leap-frog with the apsidal chapels with a vivacious movement that we feel sure is not apparent in the original colored sketch. It is a great mistake in most cases to attempt the reproduction of colored drawings in black and white. Here is a sketch of pier and vault in the municipal palace at Pistoja, by Mr. Stewardson, which was very likely wholly charming in its colored form but which is absolutely valueless here, and almost meaningless. Mr. Newton's sketches in brushwork have been saved, in a manner, through being printed in brown ink which lends an atmospheric effect that is lacking where black ink is used.

Again, here are some of Mr. Van Straaten's sketches which, through the too great reductions and the impossibility (for these printers) of reproducing the irreproducible, are here shown as a visible aggregation of dots without connecting and shaping lines. If only these gentlemen had been willing to abandon the draughtsman's shibboleth — Hands off, this is the sanctified result of inspired effort — the results, for everybody but themselves, would have been more pleasing. It so happens, too, that the three persons we have used as examples are every one of them capable of making a drawing which shall reproduce perfectly and yet shall retain all the delicacy of the original.

It is the old saw once more exemplified, a silk purse cannot be made out of a sow's ear. You can make something that looks like a purse, something that will hold money but the patient labor of the silkworm will have no share in the result.

The present portfolio differs from its predecessor in that it contains the work of a number of the honorary members of the Club, and consequently the series has not the merit that the first one had of being the work of what might be supposed to be a school of Boston draughtsmen. It is possible that the compliment thus paid to its honorary members may have been an injudicious thing for the Club to do, as it, of course, sacrifices somewhat of the local flavor; and supposing that the T-Square Club of Philadelphia should some day return the compliment, it would but repeat the mistake. The old "*Boston Architectural Sketch-Book*" and the "*New York Sketch-Book of Architecture*" were very distinctly different in their characteristics, and this difference was no inconsiderable factor in promoting the welfare of each publication.

The real value of these publications, charming as they are, is open to question, and apart from the evidence they give of a general appreciative sense of picturesqueness, they tend rather to show that the American architectural student goes abroad without any clear idea of what he can accomplish in the way of serious study while there. It is not, perhaps, strictly fair to base any such inference upon such a publication as this, for it is possible that one or more of the contributors may have undertaken and accomplished some serious and consecutive line of work; but it is difficult to believe that any editing committee, if the existence of such material had been made known to them, should not have seen the advantage of including all or a part of it in this publication, if for nothing more than for the sake of showing that the making of traveller's sketches was not the only result that an architectural student could accomplish.

It is not at all easy to determine in the case of old examples of English architecture, how much of their indisputable attractiveness for alien architects is due to their real architectural merits and how much to the adventitious claims of landscape gardening. The fresh clean foliage — usually darker than ours — the luxuriant ivies and the trim lawns and grounds have had much to do with building up the architectural reputation of many an English "show place," which deprived of these accidental aids would be as barren and uninteresting as much of the modern work — which fifty years hence may be as interesting to our successors by reason of the growth of vegetation as many an older manor house which has a real historic interest.

The great attractiveness of English country houses, whether they are castles, manors, halls or farm-houses, lies in the fact that they are homes, and homes that look as if they were lived in all over, not merely one wing or corner, here a room and there another. But those Americans who have visited such places say that the cosy and homelike air is largely deceptive, that though effort is unceasingly made to secure comfort and homely enjoyments, they are often barren of results. In fact, some people go so far as to declare that the real reason for Englishmen being such confirmed travellers lies in the fact that their own houses are too uncomfortable for them to live in. There is some base of truth in this. These old houses were not built for these days and times, or for our sybaritic generation. They were built for men who spent most of their time out of doors and used little more than the dining-room when in the house, and when they left that they cared little how damp and cold might be the chamber where they couched, so thoroughly had they fortified their systems with port, punch and toddy. As for the women, they did not then receive the kind of thoughtful attention to their comforts that they now exact, and then, did they not have their mufflers, their screens, foot-stoves and warming-pans? A big fire blazing in a great open fire-place is the most cheering companion that man ever devised to please his eye, but can any one compute the deaths it has caused through the powerful currents it creates? A glimpse of a fine oaken staircase is all the reward a travelling-student hopes to earn by a long tramp and he asks no better, and if his ill-spared shilling will earn him other glimpses of a high wainscoted, panelled-ceiling dining-room, a state bed-chamber, or a balustrated gallery, he will willingly forego his chops and content himself with beer and stale bread, envying as he makes way with them the men and women who have the happiness to live amid such surroundings, little knowing of the many positive discomforts they have to put up with for the sake of preserving the ancestral surroundings essentially unchanged and ill-adapted to modern life.

A French château, a German castle, or an Italian villa, charming as it may be in appearance, looks somehow as if the men who lived in it must have vastly different habits and manners from those which would suit American ideas, and the transplantation of any copy of these homes to America suggests to those who see them a distinctly foreign flavor and want of adaptation to American ideas and habits, while a copy of almost any English house of equivalent character would not call attention by its foreign air or attract notice save by its evident desirability for a home-loving owner.

The domestic architecture of England practically begins with the Stuarts and its evolution continued through varying phases of Tudor, Elizabethan, Jacobean and Queen Anne styles, as these overlapping names are given to the changing forms adopted. Our authors have chosen to style their work the "*Architecture of the Renaissance in England*,"[1] and they exhibit not the graceful Renaissance of Italy, or the picturesque Renaissance of France, but the insular interpretation of the impulse that had trickled into Great Britain by way of Flanders, after it had spent its most vital effort with peoples whom nature had endowed with a keener perception of grace and graciousness than she had bestowed upon the energetic offspring of mixed Northern races. Consequently one must not hope to find amongst the illustrations, the work is to contain, the kind and quality of detail which has grown to be associated with the word "Renaissance," but one may hope to find, and will find, work of homely useful character, whose great charm is its homeliness, its immediate applicability to our own every-day uses.

At the present time, fashion has decreed a revival of interest in Renaissance architecture and architects who are not content to work in the simple vernacular are now seeking inspiration from the published documents that have a bearing on these styles, and any office library that is not well equipped with works on Italian, French, English and German Renaissance is at a disadvantage as regards success in competition for business.

Broadly speaking, Italian Renaissance details and *motifs* are better adapted to urban than to suburban buildings. French and German Renaissance is usable amid surroundings of either kind, while English Renaissance, where it is clearly distinguishable from the Continental styles, is more adopted than they are for use in isolated buildings amid country surroundings, with the result, so far as this country is concerned, of not seeming out of place. This country is so enormous, however, that its climatic conditions and the manners and customs of its inhabitants vary as widely as climate and manners vary between different European countries, so a style of building which may seem merely foreign to all its surroundings in one locality may in another be thoroughly in harmony with them and take on an altogether homelike air. As an American architect may at any time, though practising in one place, be called upon to design buildings for other places, he may, if he has a *penchant* for any particular phase of style, do himself and his art a grave injustice by yielding to the temptation to design the new building in his favorite style rather than in a style really better suited to the conditions of site, climate and manners which are part and parcel of his new problem. Therefore it behooves the American architect to have his office library well equipped with reference-books which he can turn-to at a moment's notice, and he will not find one that covers English Renaissance work any better than this. The photographic prints are at so large a scale that there is no great need of illustrations of their detail, yet our authors supply measured drawings of detail with the photographic plates and an additional supply introduced as cuts in the text. Of text there is so little that the subscriber cannot feel that more than a very small part of the price of the work is assignable to the production of this part of the book, and neither does it call for an expenditure of much time in its reading, and gives no excuse for the plea so often urged that "architects have no time to read," that "all they care for is the picture." Yet there is enough of text to satisfy the inquiring mind.

Of course any work of this kind which aims to be fairly comprehensive must consider a number of old friends, which have become familiar through other publications which have dealt with them through the medium of the artist's pencil but without the exactitude of the photographic camera. Nash and Richardson and Billings and others have published some of the buildings that are to be included in this work, but our authors have kept this fact in mind

[1] "*Architecture of the Renaissance in England*": illustrated by a series of views and details of buildings erected between the years 1560–1630, with historical and critical text by J. Alfred Gotch, F. R. I. B. A., assisted by W. Talbot Brown, A. R. I. B. A. Part I: Burleigh House, Hardwick Hall, Haddon Hall, Park Hall, Boughton Castle, Apethorpe Hall, Ragdale Hall, Hambleton Old Hall, etc. 22 plates 14″ x 19″, in portfolio, with 12 pages of text. Price to subscribers, $8 per part (to non-subscribers $10). Boston: Ticknor & Co. 1891. London: B. T. Batsford.

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and have been particular to exhibit these familiar friends under new aspects and from unfamiliar points of view.

Some architects look with disfavor on any book that contains anything but new and unfamiliar matter, and some may incline to think that because some of the subjects in this work can be found in Nash or Richardson that it is not worth their while to purchase it, but we fancy that very few of those who may advance this argument actually have in their offices either of these standard works, or know where, at a moment's notice, they can lay their hands on them.

A VERY different publication from the foregoing is that which has been recently issued by the publishers of the *Technology Architectural Review*, who have sought to add their mite to supply the present demand for documents on Renaissance architecture by issuing a portfolio — put up in a very attractive form — containing fifty small plates illustrating details of the Italian Renaissance. There is little to be said of this collection[1] save that it is of a convenient size, and as useful, probably, as any other collection of similarly miscellaneous and unclassified materials. It has the air of being the reproduction, by one of the so-called "half-tone processes," of the collection of photographs that some architect has culled from the dealer's collections placed before him merely because they chanced to please his momentary fancy, or were the only subjects of all the dealer's supplies that seemed to him at all worth buying. But collections made in this way are of greater value usually to the maker than to any other person, and though the publication is worth the modest price, it seems to us to be a thing which will be turned to in search of some particular something which invariably proves not to be there.

A BOOK with Messrs. John Wiley & Son's endorsement, as publishers, can generally be depended upon as being well written, and by some one who understands his subject, and Mr. Birkmire's convenient work[2] is no exception to the rule. Architects have long wanted just such a book as this, simple, practical and comprehensive, for daily use in the office by draughtsmen engaged in laying-out iron-work. There are some admirable treatises on the designing of trusses and girders, which the architect himself finds indispensable in his private library, and he will probably see that his superintendent, in cases of importance, is supplied with the latest and best works on the qualities of all sorts of iron and steel; but these publications, however valuable in their way, do not give that comprehensive, even if superficial, view of all kinds of iron building, to which the average draughtsman needs first to be introduced. We remember, many years ago, when iron buildings were popular in New York, an advertising book of plates, issued by a firm of iron founders and builders, which contained rough sections and details of all parts of an iron building, from the bowstring girder over the rear extension to the Hyatt light in the front sidewalk, and from the bedplates under the basement columns to the sheet-iron cornice, with diagrams of the joints and methods of securing the parts together. This book was absolutely invaluable in the office. The size of the box for the rolling-shutters, the proportions of the sidewalk L-girders, the proper connection of the front columns, the most judicious bracketing for the reception of ends of the floor girders, the arrangement of the dwarf doors, and the infinite variety of other details of the sort, could be immediately ascertained from it, without the laborious process of going out and measuring some executed example, or the shorter, but more costly one, of making the drawings by inspiration, without reference to actual precedent; and it was with much regret that we learned, some years ago, that it had long been out of print. Mr. Fryer's excellent book came to take the place of it, to some extent, and Mr. Bickmire's is still more modern, and, while keeping in mind the same practical usefulness, in a far wider diversity of detail, adds a large number of good and convenient tables and formulæ. A model specification for ironwork is also inserted, which will be useful for reference; and, as an appendix, we find extracts from the proposed New York Building Act, which has not yet been passed, but will at least afford valuable suggestions.

MR. ROBERT GRIMSHAW, General Editor of the Trades Department of Funk & Wagnalls' "*Standard Dictionary*," being desirous of making as complete as possible his list of mechanical and industrial terms, requests manufacturers of machinery and tools having important parts not found on those of other makers, or the names of which are not yet in general use, to send the name, definition and use of each such part to him at 115 Bible House, New York City.

PUTTING OUT FIRE WITH SAND. — In connection with the equipment, for fire protection, of wood-working establishments, it is recommended that a gallon pail filled with fine sand, be always placed within convenient reach of each workman employed where oiling and finishing is being done. This practice might well be followed wherever there is a possibility of fire starting in oils or oil-soaked materials. There is nothing which will squelch an oil-fed fire in its incipiency more quickly and effectually than sand — and there are no afterclaps in the way of water damage either. — *Fire and Water.*

[1] "*Details of Decorative Sculpture.*" Italian Renaissance. 50 small plates in portfolio. Boston: 1890. *Technology Architectural Review.*

[2] "*Architectural Iron and Steel, and its application in the Construction of Buildings.*" By Wm. H. Birkmire. Fully Illustrated. New York: John Wiley & Sons, 53 East Tenth Street. 1891.

ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

TURKISH AND RUSSIAN BATH ESTABLISHMENT, WALNUT ST., PHILADELPHIA, PA. MR. WILSON EYRE, JR., ARCHITECT, PHILADELPHIA, PA.

[Gelatine Print issued with the Imperial and International Editions only.]

A DETAIL of this building was published in our issue for March 28.

HAMBLETON OLD HALL. REPRODUCED FROM GOTCH'S "*Architecture of the Renaissance in England.*"

"THERE is no record to show who built this house, nor are there any arms, initials, or date upon it to give a clue. It is a good example of one of the smaller houses of the period, showing how a comparatively slight feature, like the arcade, can impart architectural character to a building. On the north side is an arcade with arches, of which a measured drawing is given on Plate 21. The plan is of the usual type, the hall dividing the family apartments from those occupied by the servants. The original arrangements have evidently come down to us with very few alterations, though, judging by the fragments of wrought stone that lies about, the house was once larger; and it is clear, from a fireplace still remaining, that there was a room over the kitchen."

HAMBLETON OLD HALL: DETAILS.

HOUSE FOR M. E. HOUSE, ESQ., AUSTIN, TEX. MR. FRANK FREEMAN, ARCHITECT, NEW YORK, N. Y.

WEBB ACADEMY FOR SHIP-BUILDERS, FORDHAM HEIGHTS, N. Y. MR. A. B. JENNINGS, ARCHITECT, NEW YORK, N. Y.

BUILDING AT THE CORNER OF LINCOLN AND ESSEX STREETS, BOSTON, MASS. MR. J. H. BESARICK, ARCHITECT, BOSTON, MASS.

A POTTERY MEXICAN IDOL SKETCHED BY MR. N. DALMA.

SEE article elsewhere in this issue.

[Additional Illustrations in the International Edition.]

THE TOWERS AND SPIRES OF BRUGES, BELGIUM.

BRUGES is less a "city of churches than many another place, but the level canal-cut plain that surrounds it gives great value in the monotonous landscape to the towers and spires, that do rise up. In the view here shown, the spire just emerging from behind the windmill mound belongs to the Cathedral of St. Sauveur, the square tower in the middle is the famous bell-tower of the Halles, but the one between it and St. Sauveur's we cannot identify. Next to the bell-tower on the right are the Temple de Jerusalem (see *American Architect* for June 6, 1885,) the Church of Ste. Anna, and the Couvent des Apostelines and still farther away on the right can be dimly seen the low dome of the Couvent des Dames Anglaises. In the immediate foreground, on the canal, is the remains of the old town-wall.

APARTMENT-HOUSE, BRÜNN, AUSTRIA. HERR F. SCHÖNBRUNNER, ARCHITECT, VIENNA, AUSTRIA.

[Gelatine Print.]

GLAZED VERANDA.

[Etching.]

PULPIT IN MORAY CHAPEL. ST. GILES'S CATHEDRAL, EDINBURGH. DR. R. R. ANDERSON.

ALL SAINTS' CHURCH, ACKWORTH MOOR TOP, YORKSHIRE, ENG. MR. CURZON, ARCHITECT, LONDON, ENG.

THIS building is a chapel of ease to the mother church of Ackworth. The north side faces the high road from Ackworth to Wragby, and the porch is therefore placed on that side, and on account of its aspect and bleak position there is also an internal lobby to shut off the cold winds. This is planned within the half-timber structure which supports the bell-turret, and a corresponding space on the south side being given to the belfry, the suggestion of a narthex between the two is presented in the interior. The eastern bay of nave has shallow transepts, which give a useful increase of

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light and space there. The nave ceiling is polygonal in form, the apex, 28 feet high, not reaching to the ridge of roof.

The walls and masonry are mainly of local stone from the neighboring Brackenhill quarries, and the interior is all of this stone in fair ashlar. Excellent as this stone is in many respects, the architect, after examining the ancient and more modern buildings of the district, decided against its use near the ground or under drips from window-sills and elsewhere, and a more trustworthy Yorkshire weather-stone had been used in these positions.

The church seats 152, exclusive of the small choir. The embroidered requisites for the chancel and other objects in silver and brass (except the gas pendants) were made by Messrs. Jones & Willis, from the architects' drawings. The reredos is of alabaster, with panels of mosaic. In the nave there is a wooden cornice connecting the hammer-beams and running round three sides (one side being the beam of the half-timbered narthex) and on this is inscribed in black letters, illuminated, the Lord's Prayer, divided into seven sentences, each in a separate compartment. The external boundary walls, etc., of a local pattern, were not the work of the architect or the builders of the church.

KITWELLS PARK, SHENLEY, HERTS, THE RESIDENCE OF MR. A. J. LAMBERT. MR. REGINALD G. PINDER, ARCHITECT.

This mansion has lately been altered and renovated. Our illustration shows the entrance-hall, which is executed in oak in the Jacobean style. The work was carried out by Messrs. Boff Bros., builders, Park Street, St. Albans.

NEW FACTORY, GRANVILLE STREET, BIRMINGHAM. MESSRS. ESSEX & NICOL, OF BIRMINGHAM, ARCHITECTS.

These works are being erected by Messrs. Surmon & Sons, contractors, for Messrs. Martin & Martins, leather goods manufacturers. The front block contains the offices, show-rooms, ware-houses and store-rooms. The front elevation is carried out in red brick with Bath stone dressings, and the roof is covered with Bangor slates.

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

A CASE OF EXTRAS.

Rochester, N. Y., April 20, 1891.

To the Editors of the American Architect:—

Dear Sirs,— Will you please give me your decisions as soon as possible on the following points:

1. I have just completed a building and have settled up the contract between the owners and the contractors. The contractors presented a bill of $15 for a few outside blinds, which had been omitted by an error of my draughtsman from the drawings, on which the contractors originally figured. The specifications read "Windows marked O. B. on drawings to have outside blinds." Both the owners and the contractors positively refuse to pay for the blinds, and both claim that the architect should pay the bill. The owners agree to leave it to you and to abide by your decision.

I would like to settle once for all, the question of the liability of the architect in all similar cases.

2. What do you consider the best material to put into hollow iron columns which stand in water liable to freeze solid, in winter? The bases of the columns are cast solid, but water is apt to get in from the top and freeze inside, if they are not filled-in with something.

Yours very truly, Architect.

[1. If the contractor saw that blinds were really intended for those windows, and the mark was left out by mistake, he is bound to put them in at his own expense, as neither he, nor the owner, nor you, has a right to take fraudulent advantage of an innocent mistake on the part of either of the others. If, on the contrary, he supposed that blinds were not wanted on those windows, and made his price for the house without them, it is evident that the contract price would have been higher if they had been included, and, if they were not included, the owner is bound to pay a reasonable price for having them added. The limit of the architect's responsibility is this: If the addition of the blinds left out of the drawings by his mistake involved any change in work already done, he ought to pay for making the change, so that the owner should only have to pay for the house, with all the blinds complete, just what he would have had to pay if they had all been included in the contract price. Whether the amount charged as extra for the blinds is the same as the addition which would have been made to the contract price is a matter into which the owner is fairly entitled to inquire; but we suppose that, under the contract, nothing more than a reasonable price is to be paid for extras, and, unless the contractor was put to special trouble and expense to get these particular blinds, a reasonable price would be no more than he would have added to his estimate, to cover the cost, with his profit.

2. If the columns could be thoroughly dried out, and warmed, we should be inclined to fill them with melted rosin, or with coal tar. If not, perhaps the lower part could be filled with cement, with rosin or tar in the upper portion.— Eds. American Architect.]

BLUE AND BLACK PRINTS.

Logan, Utah T., April 13, 1891.

To the Editors of the American Architect:—

Dear Sirs,— Could you furnish me, through the *American Architect*, the exact names of the blue-print chemicals and the black print, if possible?

Very respectfully yours,
K. C. Schaub.

[The black print process was described in the *American Architect* for December 7, 1889, another black process in the issue for January 29, 1887, a reverse blue process (blue on white) in the issue for August 1, 1885, and the blue process itself in issue for September 13, 1884. Eds. American Architect.]

TRADE SURVEYS.

One fact which deserves more than passing notice in the industrial situation is the increasing compactness of organizations among employers of labor in all parts of the country and in all occupations. The failure of so many recent strikes is due to this cause in a large measure. Besides the mere fact of the organization of employers, there is a stronger sympathy between those who are not openly organized, which serves to that extent the purpose of organization. Employés have discovered this cohesiveness among employers, and have felt the effect of it in various ways. The inability of labor to carry its purposes with a high hand or with a minimum of effort is also due in a measure to the fact that there is not an urgent demand for labor. The building boom has subsided partially; the iron trade is sluggish; railroad-building is at a standstill; facilities for mining have been greatly increased, and if coal cannot be had in one section, it can in another. While there is no overproduction, there is an abundant supply of manufactured products. Organized labor instinctively feels that these conditions are against it, and that efforts to force conclusions under such conditions are in greater danger of failure than three or four years ago, before organization of employers had reached its present condition of efficiency. If labor was in greater demand, if facilities for production were not what they are, if employers were not as compactly organized as they are, we would doubtless witness a series of strikes extending throughout the country, and affecting not two or three trades, but many. Then, again, the spirit of socialism has received a setback from organized labor itself, and the workingmen at large, both in and out of organizations, have come to recognize that strikes are, at best, a costly remedy, and that other remedies and measures are more desirable. Still, while the worst is over, the danger of obstruction from organized labor is by no means over. Miners, in the start, were never in sympathy with the few agitators who proposed a general suspension. The railroaders throughout the country showed they were not in sympathy with the general strike movements that have been agitated within the past year or so. Mill and shop labor has shown its dislike for organized efforts to force employers. While the membership of labor organizations is large, and to that extent threatening, the actual spirit which animates these organizations has changed very materially, and, it may safely be said, permanently. While strikes are probable as long as men are banded together, it can be said with a good deal of safety that general strikes for an advancement of wages are a more remote probability than they have ever been. The greatest danger from labor agitations in the future is in the direction of hours of labor. The laborers who are working ten hours will never relinquish the purpose of reducing the hours to eight. It is this, rather than the hope of better wages, which holds so many thousands together. The members of the building trades have given less trouble this year than for many, perhaps because they have secured material concessions, and feel sure that others are likely to follow soon. The workmen of foreign countries are discontented, but are giving more attention to higher and broader measures of emancipation, as they are termed, than they have ever given to the subject before. European governments are watching labor organizations in their national and international conferences, knowing that they represent a power which ere long will be heard, and heard effectively, in the halls of legislation. European labor has placed itself upon a firmer footing than it ever before enjoyed. It has the coöperation of agencies and of men, and of a leadership which never before condescended to render aid directly or indirectly. In this way, the danger of socialism is being, to a certain extent, averted. The discontented laborers of Europe are working in legitimate directions and for creditable purposes, and are drawing to their aid influences and powers which would never otherwise have regarded their causes with sympathy or interest. In short, education and reflection are doing for laborers on both sides of the water what nothing else could do. A few years ago, the organization of labor was regarded as involving possible disaster, but with organization came education and reflection; out of these has come the present departure into more conservative methods for the accomplishment of its aims. The volume of business throughout the country is still a little below that of last year; prices are stationary; production is kept well in hand; labor is being re-employed for spring and summer work; new enterprises are multiplying, and there is more care manifested by investors and promoters in new work. Shop-capacity in the New England and the Middle States is being increased. The accumulation of stocks is being most carefully guarded against. All work supervised by architects will be as abundant as last year, but the class of work in which ordinary builders engage will not be. House-building in the larger cities will not engage as much capital and labor this year, but it will be compensated for by a greater amount of work in shop-building. Despite the fact that low prices prevail in all manufactured products, it is true that there will be more manufacturing-capacity erected this year than last. While it is true that dividends in industrial stocks are low, it is also true that capacity in these industrial channels is being increased; just why it would be, perhaps, impossible to intelligently explain. Doubtless the investors anticipated a reaction and a general improvement in a short time. The promise of abundant crops is giving encouragement to business men at large. The farming area is being steadily increased, and this fact, perhaps, counts for more than it is credited with. Western railway managers look forward to a rapid increase in the population of the strictly agricultural area; higher prices for farm-products seem probable; good prices for cotton are assured. An increasing output of precious metals and of Western mine-products generally is spoken of by authorities in such matters. A great deal of capital is seeking opportunities in the mineral fields of the far West. While the country at large is prospering, and is advancing with a steady step, there is not that inducement for wild investment and for speculative ventures which stimulated enterprise to undue limits a few years ago. The country is, perhaps, better for the check it has sustained.

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WE wish to disarm criticism, so far as possible, by at once acknowledging that the manner in which the designs for the Cathedral of St. John the Divine are illustrated in this issue is unsatisfactory, the results being about half as good as they would have been could the negatives have been made in our own gallery. Instead of this we have had to put up with such light as the galleries of the Academy of Design in New York afforded on a number of successive Sundays, and in consequence have had to endure vexatious delay and unnecessary cost, resulting finally in disappointing plates.

SOME of our readers may have wondered why we have made no comments upon this competition and the second set of designs submitted. Our reasons have been twofold: first, because of the undesirability of forestalling with criticism the intended publication of these revised schemes; and, second, because the entire undertaking, from first to last, has been attended by so many unpleasant features, reference to which ought not to be avoided, that we have put off the disagreeable task to the last moment. Instead of being one of the pleasantest professional events that have occurred in this generation, this great competition has been one of the most disagreeable. The original scheme, which was generally understood to foresee the building of a great Protestant cathedral, by and with the joint assistance of all Protestant communions and for their joint occupation and enjoyment is now, as generally, understood to have changed in character to an endeavor to procure a great Episcopal cathedral. Yet the contributions of other sects are invited and are to be accepted. A Board of Trustees was formed and they, without the needed professional advice, prepared the programme for the first competition, and when the drawings, made in supposed conformity with it, were submitted, these Trustees endeavored, for weeks, to make a choice. Finding that in some ways the task was beyond their capacity they *then* appointed a board of expert advisers, but later, reverting to their first belief as to the superiority of their own judgment, they exhibited their appreciation of professional advice by including in the designs to which were finally awarded the first places only one-third of the designs recommended by the expert advisers, adding to the list others which the experts had advised against. The loose manner in which the programme for the first competition was drawn by the Trustees may be known from the fact that, though it was supposed to call for "sketches," the experts found themselves unable, under its terms, to throw out the fully rendered design submitted by Mr. Gibson — which could hardly be thought by any one to be a "sketch."

THE authors of the four selected designs were paid a modest sum for their work, and were asked to elaborate their schemes for a final competition, but as there was no satisfactory assurance given that the successful design in the second competition would be carried into execution, these architects naturally desired to know what was to be their compensation, and for nearly two years they were unable to get from the Trustees a reply to this pertinent question. What was the result? Two competitors let the matter rest and awaited the decision of the Trustees; the other two spent the intervening time in working up their schemes. Finally the Trustees answered the question asked so long before, and at the same time required that the revised designs be submitted in two weeks' time. Think of it, to restudy a cathedral design, make two perspectives at sixteenth scale, a colored interior view showing decoration, plans, elevations and sections in two weeks! — the Trustees consented to waive the matter of estimates. One design — elaborate with the work of months — was delivered at the appointed time. The protests of the other competitors procured an extension of five weeks, but how inadequate a relief that was is shown by the fact that one firm, in place of making new drawings, found themselves obliged to send in their first drawings embellished with "flaps" showing the proposed changes. In extenuation of the singular dilatoriness of the Trustees in informing the competitors what was to be the business footing for the final competition, it must be remembered that their plans were slightly disarranged by the suggestion that the Cathedral site might be needed for the temporary use of the World's Fair. But as it was obvious that funds and working-drawings would not be ready till after the exhibition had been again distributed into its original particles, there was really no excuse to be found in it for keeping the architects in suspense. Besides these disagreeabilities of a general nature, there are special ones which concern each competitor. In a final competition of this kind the competitors could, and should, have agreed to a common interpretation of the programme, and for lack of it one of the competitors submits to the unguided and unguarded Trustees drawings at one-tenth scale, in place of the one-sixteenth-scale drawings understood by the other competitors to be called for and adhered to by them, and adds a highly-colored perspective to the black-and-white ones required, but finds an excuse for his action in the loose wording of the programme. Another competitor has the fortune to be connected by ties of blood with the supposedly most influential Trustee, who, to protect himself from any possible charge of nepotism has, according to the newspaper reporters, most unnecessarily done all in his power to prevent his relative from being allowed to enter the second competition, though he won the honor fairly as an unknown competitor in the first competition. A third firm are now being sued for ten thousand dollars, and have been compelled to defend their right to use their design against an injunction suit, which vainly endeavored to prevent the exhibition of their design, all because they decline to add to their own names the name of a third architect who claims an interest in the design. Against the fourth competitor nothing is lodged save a charge of plagiarism, which few can hope to escape.

WE do not think that this is a pleasant record for such an undertaking, and, more than this, these facts have so impressed us, that we cannot feel that there is any real meaning in this second competition, and hence that any discussion of the designs submitted in it would be barren of effect so far as the future building is concerned. It seems to us to be enough to lay before our readers the designs (poorly reproduced, we again admit) and the explanatory notes of the authors. One thing, however, seems to be plain, and that is that the

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Trustees, or the working members of that board, excellent and effective as they may be in those walks of life with which they are really familiar, have in this matter shown a kind and amount of incapacity that may warrant intending subscribers in doubting whether men who have so bungled the preliminaries have any proper claim to be continued in control of this important undertaking. As to the action of the competing architects, it is equally plain that their conduct in face of the disagreeable conditions that confronted them stands out, on the whole, in gratifying contrast with that of their would-be employers. This action does not greatly fall short of all desirable earnestness of purpose and dignity and propriety of conduct. More than this, the designs submitted are, without exception, worthy of attentive study and consideration, for all are purposeful, conscientious and practicable solutions of the problem.

EVER since the project for a cathedral in New York began to take tangible shape, the Trustees have had the benefit of the abundant suggestion and criticism which the secular, religious and technical journals have placed within their reach. Much of this matter was quite immaterial to the main issue, some of it was the work of unbalanced hobby-riders and some of it was incubated by unquestionable cranks. Some of the secular editorials were doubtless inspired by architects and, of course, professional criticism is the most to be desired, though whether the Trustees have been, or can be, influenced is a doubtful question, for, like building-committees generally, they are likely to have made up their minds already on every point, and are to be moved by no arguments any one can advance. Nevertheless, it occurs to us that something like an authoritative expression of professional opinion may be of assistance to the Trustees, and we therefore invite the subscribers to the International Edition, who now have placed before them the data for forming a fair comparative judgment, to notify us, before June 1, which of these four designs is, in their opinion, most worthy of the first place.

WE were led, by trusting to the daily papers, into an error last week in speaking of the plans for the new shower-bath houses in New York as having been made by Messrs. Brunner & Tryon. It appears that they were made by Messrs. J. C. Cady & Co. for the Association for Improving the Condition of the Poor, and are now being carried into execution, the first being in process of erection in Centre Market Place, near Broome Street, on the east side of the city, in the midst of a poor and crowded population. The building is twenty-five feet wide, being planned for the ordinary New York lot. The walls are lined with white enamelled brick, and the floors are of slate, on iron beams and brick arches. The divisions between the baths are of metal. Eighteen shower-baths are arranged on the first floor, and seven in the basement, and there are five ordinary baths for those who do not like the shower. Under the sidewalk are the boilers, besides an engine, which drives the laundry-machinery, and the pumps and electric-light apparatus, and a fan for ventilation. Water is taken from an artesian well, in addition to the Croton supply, and it is estimated that five hundred baths can be given per day. The baths for men and women are separate, with separate entrances and reception-rooms. The cost of the building and lot will be nearly twenty-five thousand dollars, a part of which has been contributed, while the rest has been advanced, in order that the work might not be delayed. A portion of the bath-house is to be reserved for persons who can afford to pay a moderate charge, and it is proposed to require a nominal fee from bathers who use the other portions, but to distribute tickets gratuitously, through proper agencies, to those who need them, so that, at least for a time, the baths will be practically free to well-disposed persons.

THE investigation into the causes of the fall of certain stair-landings in Mr. Morton's hotel, the "Shoreham," in Washington, has brought to light the fact that a considerable part of the main floors, which were, like the stair-landings, laid with wooden beams, filled-in with blocks of some sort of fireproof composition, apparently made of cinders and plaster, and covered with a tile floor, are so rotten that they will have to be taken out and rebuilt. According to Mr. Entwistle, the Inspector of Buildings for the City of Washington, the beams over which wood-flooring was laid are in good condition, the exclusion of the air by the tiles being, apparently, the cause of the rotting of the timber in the tiled portions. By the owner's direction, the building is to be at once thoroughly repaired; but the cost of the necessary changes is fifty thousand dollars, while, as the hotel must be closed during the operations, there will be a serious lost of rent in addition. With some clients, an occurrence of this kind would be followed by an interesting discussion as to whether the owner or the architect should pay all this expense. Apart from such considerations as the part which the architect and owner respectively took in deciding upon the construction to be employed, the decision would depend upon whether the architect ought reasonably to have known that a floor constructed in that way would rot. In regard to this, we should say, at present, that he could hardly have been expected to do so, as constructions of this sort are rather extensively used, and still more extensively advocated, by people interested in fireproof buildings; but this experience is not the first of the kind, and, before long, the stock of technical knowledge which every architect is presumed to possess is likely to be enriched by the observation that fireproof blocks in mortar, or heavy masses of mortar or concrete between wooden beams, are objectionable, and, if the floor above and the ceiling below should be at any time made nearly impervious to air, are likely to cause the beams to decay. If this conclusion should be established, architects will thenceforward plan or specify, or suffer to be constructed without protest under their supervision, such floors only at their own peril. Naturally, owners, who wish to save money, will prefer such a construction where it is safe; but architects ought, in honesty to their employers, as well as for protection to themselves, to explain, before it is adopted, that there are chances against it, and that it must be distinctly understood that it is used at the owner's risk, and not at theirs.

M. EDOUARD MARIETTE, in *La Semaine des Constructeurs*, gives a little account of what is to be done by the French Government at Delphi. The Government has already increased its original appropriation, so that one hundred thousand dollars are at the disposal of the French School at Athens, for paying the cost of removing the villagers of Castri, and excavating the rich mass of antique débris on which their houses are built. M. Mariette has not much hope of finding objects of intrinsic value in the ruins. Rich as Delphi once was, it has been too often and too thoroughly plundered to retain many objects that it would have been worth any one's while to carry off. Including Xerxes, twenty generals or invaders have successively ransacked the place at their leisure, in search of booty. Sylla collected all the gold and silver he could find, and melted it, to coin into money for his troops, while Nero, with more taste, carried off five hundred statues at once. Finally, in some savage incursion, the whole place, including temples and houses, was burned. In one way, the final fire was an advantage to the archæologists of the present generation, as it buried in ruins the lower portions of the buildings, preserving them, perhaps, better than they would have been preserved if they had remained exposed to the depredations of the local lime-burners. It is to be hoped, M. Mariette thinks, on this account, that the substructure of the temples, and, possibly of the great *Lesche*, or conversation-hall, which was adorned with paintings by Polygnotus, may be found in sufficiently good condition to admit of restoring their forms, and some of their details. Besides these, it is almost certain that inscriptions of historical value, will be discovered in abundance. Even Theseus, when he cut off his golden curls, and hung them up in the temple, as the only thing he could offer to Apollo, probably scrawled on the wall beside them a dedicatory inscription, and there must have been thousands of tablets, or inscribed stones, which no one would have cared to take away.

THE "prize of the Americans," in the Paris School of Fine Arts, has this year been awarded to M. Chaussemiche, a pupil of MM. André and Laloux. The subject was an Archæological Museum. Curiously enough, the subject of the competition for the Achille Leclère prize, which was held at the same time, was a Museum of Sculpture, and the first prize was awarded to M. Belesta, a pupil in the same *atelier* with M. Chaussemiche. The programme for the American competition, a model of clearness and good judgment, is said to have been written by M. Ginain. How many competitors there were we are not informed, but the number appears to have been very small, perhaps only two or three.

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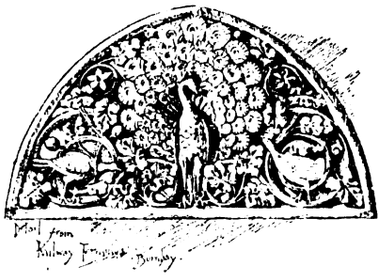
FRENCH ARCHITECTURE.[1] — V.

TRANSFORMATION OF THE SOCIAL STATE IN THE MIDDLE AGES.



IN the second half of the twelfth century the Gothic style had freed itself wholly from its Romanesque sources; it reached full maturity in the thirteenth century, which witnessed the erection of our noblest cathedrals. The type was created, its special proportions were determined and its decorative principle clearly defined: was it destined to live and to force itself upon coming generations?

The respective styles of Egypt, Greece and Imperial Rome, once fixed within immutable lines, were perpetuated for centuries without undergoing any perceptible alteration. Nothing of the kind, however, is true of Gothic art; it unquestionably possessed characteristic forms — the more or less elevated pointed arch, and especially the groined vault, flying-buttress and buttress, which survived for a long period — but the very proportions of these constituent parts of the new architecture varied within extraordinarily wide limits; the pillars supporting the vaults, which were short, squat columns at the end of the Romanesque age, were soon transformed into clusters of light colonnettes, and later their primitive character was completely lost and they became mere sheaves of ribs springing from the ground and shooting up in a single stem to the summit of the vaults. As time went on, the vaults, which were originally formed of two simple intersecting barrel-vaults borne on the arches of intersection, were cut up in all directions; the diagonal arches branched out into *liernes* and *tiercerons*, and, at the point of intersection of the manifold ribs, stalactite-like keys were introduced. The flying-buttresses soared higher and higher in superimposed stages, while at the same time they grew continually lighter and more airy. The decoration, which was at first sober, assumed a more and more complicated character; the mouldings became more and more ornate; the gables developed gradually into veritable aerial edifices carved over with trefoils and roses; and pinnacles, finials and crossettes appeared in profusion. *Ensemble* and details, everything was so transformed that, but for a constructive disposition whose principle at least was maintained throughout, the productions of the thirteenth, fourteenth and fifteenth centuries would seem to belong to radically different styles.

We find that the farther down the centuries we move, and the more complex the beginnings of each new style are, the more intimately blended the races have become; the more fluctuating and transient likewise are the social institutions, manners and artistic tendencies of the generations formed and transformed in the bosom of this ever increasing complexity. Egypt preserved her theocratic and despotic constitution for thousands of years; for centuries Greece maintained her republican organization of small rival and hostile cities, which united but once, and that in the golden age of her history; and we know how long Imperial Rome guarded her centralized power, both administrative and military, and that Byzantium, though much weakened, prolonged the same for some centuries after the downfall of Roman supremacy in the west.

The Middle Ages offer no analogous conditions. Scarcely had the barbarian conquerors set about their social task, namely, the establishment of the feudal régime, before feudalism was assailed by a rising power which was destined to found, after a long and violent struggle, the French monarchy and at the same time create French national unity. Hardly had the feudal institutions been endowed with life before they were shaken and enfeebled and began to give way to totally dissimilar institutions. It is this process of transformation which we will now trace as briefly as possible.

At the beginning of the eleventh century the kingdom embraced five great territorial divisions in the north and two in the south; namely: the duchy of France, which carried with it the royal prerogative, the duchies of Normandy and Burgundy, and the counties of Flanders and Champagne, on the one hand; on the other, the duchy of Aquitaine and the county of Toulouse. Each of these great fiefs was divided into secondary holdings which were themselves very powerful, as for example, the counties of Maine, Anjou, Hainault and Brabant, the duchy of Gascony, the county of Auvergne and the viscounties of Narbonne and Béziers. These last were in turn subdivided into city viscounties, baronies or chatellanies, each comprising a large number of parishes and villages; and finally there were still lesser mesne-feuds held by feudatories, or simple proprietors of castles, whose subjects were confined to the peasantry and the serfs.

"As yet no tie adequate to bind these various territorial divisions together existed; anarchy was at its height. There being no recognized central authority, constant warfare was waged between province and province, city and city, château and château." For several centuries the royal power was occupied in the work of evolving unity out of this chaos. We will briefly note the various steps of the transformation, century by century.

The eleventh century was devoted to the task of bringing the barons of the Duchy of France into subjection to the king; and establishing throughout the royal domains a formal and recognized code of laws fixing the relationship of all the members of the new society, from the simple castellan to the king himself. For a money consideration the cities and communes purchased partial independence; the right to elect their mayors and councillors was granted them, while they were to recognize the supreme sovreignity of the king; their soldiers marched under the royal banner, in the general wars, and furnished the firmest and most reliable support to the incipient monarchy.

During the twelfth century the king, since the royal authority was thenceforth assured within his original territorial holdings, sought to extend his sway to neighboring divisions. The conquest of England by the Normans had just raised up for him a powerful and dangerous rival; the conquerors, strengthened by the possession of a foreign kingdom, retained in France, Anjou, Maine and Touraine; Aquitaine, Poitou, Bordelais and Gascony; and Brittany. As the French king was not yet strong enough to assail such an adversary openly, he worked indefatigably to stir up feudal insurrections on the enemy's territory and turn these to the profit of royalty. He, in fact, succeeded in conquering some of the provinces, but this menacing extension of kingly rule roused the feudal lords at home, and they turned against the monarchy.

The thirteenth century found the north and east allied; the coalition suffered defeat at Bouvines, but was soon after reformed, with still greater power and numerical strength; this time it was supported by the South and by the kings of England and Aragon. The alliance was once more vanquished at Taillebourgh. Then through inheritances and skilfully drawn treaties the royal authority was consolidated and extended; from that time it was clear that it would fall heir to the various local powers — that it was destined to outlive and supplant them all.

Formidable obstacles still remained to be surmounted, and the work was fraught with the greatest dangers. Feudal tradition made it incumbent upon the king to divide his possession among his heirs, and create vast appanages for them. By this means the kingdom, after having been painfully welded together, was soon parcelled out once more, and the princes holding these great fiefs became the redoubtable chiefs of feudal coalitions that brought the monarchy to the brink of ruin.

Nevertheless, the work of internal unification went on. Louis IX joined more closely to the crown the three classes — ecclesiastics, bourgeois and feudatories — whose independent legislation tended too strongly to isolation, and he prepared the way for their early consolidation into the States-general. He made the clergy national by a pragmatic sanction which set bounds to the authority exercised over them and to the taxes imposed upon them by the court of Rome, and which made the king their temporal head and support. Though not interfering with the right of the towns to the free election of their magistrates and the administration of their internal affairs, the king nevertheless made them subject to his officers in all judiciary and military matters. To bring the feudal nobility into greater dependence upon the crown, their tribunals were subordinated to the royal jurisdiction.

For judicial combats St. Louis substituted inquests and the custom of summoning witnesses; he established the right of appeal from the feudal courts to his own jurisdiction; for this

[1] From the French of P. Planat, in Planat's "*Encyclopédie de l'Architecture et de la Construction.*" Continued from page 65, No. 801.

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purpose the bailiwicks of Sens, Amiens, Mâcon, and Saint-Pierre-le-Moutiers were instituted; he likewise created a right of appeal from the courts attached to the great fiefs, and from the bailiwicks themselves, to the royal Parliament.

He organized the administration of the crown lands and regulated the raising of the revenues, by the appointment of seneschals, bailiffs and provosts, who were also empowered to lead the troops on the battlefield. It was not long before the authority of these officers assumed considerable importance, and that contributed powerfully to the overthrow of the petty feudatories. The creation of these offices was one of the hardest blows dealt against feudalism.

The fourteenth century was the period in which the long and disastrous wars against the English and the Flemish were waged; in spite of the havoc which ensued, it witnessed the enfranchisement of the country regions, the establishment of the indirect tax by the States-general, and the definitive suppression of the independence of such cities as had clung to their republican traditions. In Parliament various chambers were founded whose powers corresponded to the different functions which they were henceforth to exercise.

Owing to the reverses experienced in the war against the English and to the absence of King John who had been taken prisoner, the extension of the royal power was at first checked, and then a retrograde movement began. The States-general of 1356 took advantage of the circumstances to attempt to recover a part of the authority which the crown had arrogated to itself. They dismissed the royal officers and assumed all the duties of the tax-collectors. But the frightful excesses resulting from the existing conditions of anarchy caused the clergy, the nobility and the bourgoisie to rally in turn around the Dauphin, who promptly restored the old order of things.

During the insanity of Charles VI the members of the royal household, who were possessed of powerful appanages, excited violent internal discords, which the English made use of to promote their interests in the kingdom and to occupy Paris.

In the fifteenth century the evils had assumed such proportions that the entire country ranged itself with the king. Hatred of the invading foreigner, his spoliations and his outrages, called forth a great popular movement and, with Joan of Arc, the war became national.

The internal transformation was accomplished — military men were compelled to quit Parliament, while the legists were raised from the rank of mere reporters, which they had formerly occupied, to that of judges, and their influence became preponderant in the councils. The ecclesiastical graduates henceforth furnished the clerical councillors and took the place of the aristocracy of the prelates; the lay councillors supplanted the barons. Thereafter all the crown courts, from the highest to the lowest, were officered by men chosen and paid by the crown; and there were no longer crown vassals.

The administration of justice was entirely removed from the feudal power, which was by thus much weakened; its definitive organization under royal authority was completed by the creation of the parliaments of Poitiers, Toulouse, Bordeaux, Dijon, Rouen and Aix; and by the establishment of the different degrees of jurisdiction; first instance in the Provostships and Chatellanies; second instance in the Bailiwicks and Seneschalships; and jurisdiction of last resort in the Parliament.

The financial organization was also perfected by the institution of Elections and Generalities, the systematic levying of customs duties and excises and the suppression of the unlimited tax, which the castellan could impose *à merci et miséricorde*. The formation of the first regular and permanent army also dates from this period.

Lastly, the clergy was removed from the exclusive domination of the Holy See; it became national and independent, though at the same time it recognized the power of the French monarchy as supreme.

To recapitulate: During the Middle Ages a complete social transformation had been wrought, with the support and to the profit of royality: "The abolition of serfdom in the country regions during the fourteenth century had completed the enfranchisement which had begun in the twelfth with the emancipation of the towns. The nobility was no longer sovereign; it had ceased to oppress the country. At this period the separation of the provincial dynasties, by diminishing the number of independent States, diminished the causes of war, which, after the reunion of the provinces held from the crown, was transferred from the interior of the kingdom to its frontiers. The overthrow of the particular government of the different classes prepared the way for their reconciliation and consolidation. The isolation of the independent States was succeeded by the less complete isolation of the provinces; the diversion of government, by a less marked distinction of the classes.

"In a word, by the reunion of the provinces and the foundation of a general government, the royal authority brought about the triumph of the social principle, which was peculiarly its own, over the principle of individuality, which was inherent in feudalism and was consequently the rule of force. These results were attained only gradually. But tribunals established justice; the permanency of the army led to discipline; the stability of the administration to order, and the omnipotence of the crown to the homogeneity of the nation. Out of the débris of the old classes, a new people was formed which moved from that time slowly, but surely, toward the era of public liberty and civil equality."[1]

At the moment which we have now reached, at the dawn of the Renaissance of the sixteenth century, which was about to revolutionize the existing order of things, the foundations of the nation were being laid; a distinct unity was forming whose ties would strengthen daily and whose external characteristics would become more and more marked. Up to that time, the French soil had received successively the agglomerated or disseminated deposits of races which were hostile to one another in origin, character, manners and interests. The deep stratum of the primitive race had been in ancient times covered over with Greek and Roman alluvia which rapidly entered into it and became one with it. Such was not the case when the barbarian invaders came; their occupation of the land was dependent upon force; for a long period they kept aloof from the subjugated and sometimes turbulent people around them, jealously guarding the purity of their blood, the tokens of their superiority and their domination.

The time came, however, when the heads of important families, holders of fiefs powerful enough to assure their independence, could no longer maintain themselves in this wild and scornful isolation. Gradually, the descendants of the men who had formerly been their comrades in arms dropped down to more precarious positions and were, ere long, lost in the mass of the conquered people. Outside of a few families, who were directly descended from the conquerors, diversities of origin were soon effaced. This is an important fact, which must be taken into account in the analysis of the complex elements which enter into the composition of the French nationality. By the mixture of the races, incongruities of character and temperament were slowly blended into a new whole.

The same process of unification went on in the social and political state. For centuries the royal authority, relying upon the municipalities and the communes, which it at length succeeded in attaching to its interests, had worked steadily toward the establishment of a central government, undermining the feudal institutions and overthrowing their dangerous independence; it summoned the religious power to its aid, supported and strengthened it, then, having used it to subserve its own ends, reduced the clergy to the rank of faithful allies of the crown. Feudalism, which long retained its military character, came gradually to furnish the king his officers and army leaders; its primitive independence was in time wholly lost and it became merely a docile instrument in the hands of the monarch. At the same time that the great fiefs of the centre and north were subjugated, the independent principalities of the south were brought under the domination of the king.

But the all-important fact for us to consider is this. The royal authority in choosing its auxiliaries from the communes and municipalities — remnants of the old Gallo-Roman institutions — and making use of the juridical and administrative institutions which it filled with men from among the common people, relied for support on the conquered people, as opposed to the conquerors, whom it was desirous of overpowering and subjugating. In fact, the triumph of the monarchy meant at first the uplifting of the original inhabitants of the country: they now had a place in the councils of the king and in the government; they furnished him his troops; and, taking advantage of a comparatively peaceful period, they built up the public fortune and thereby acquired social influence. It was this regenerated race which, as it represented the majority, was to supply the deepest, firmest and most permanent stratum of the French nation.

It is true that at the end of the Middle Ages stability was

[1] Mignet: "*Formation territoriale et politique de la France.*"

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not yet definitively assured; wars were incessant, and existence was still very precarious. In the fourteenth and fifteenth centuries the country underwent long and painful trials; but the nature of warfare had completely changed. The intestine struggles of province against province, fief against fief, and of cities or communes against the local sovereign had gradually ceased; in the presence of a common enemy — the invaders who carried ravage, spoliation and violence everywhere — social prejudices and race antagonisms had been forced into the background. Before the mighty danger with which all were threatened, before the sufferings which fell indiscriminately upon all, it was necessary that harmony should be secured.

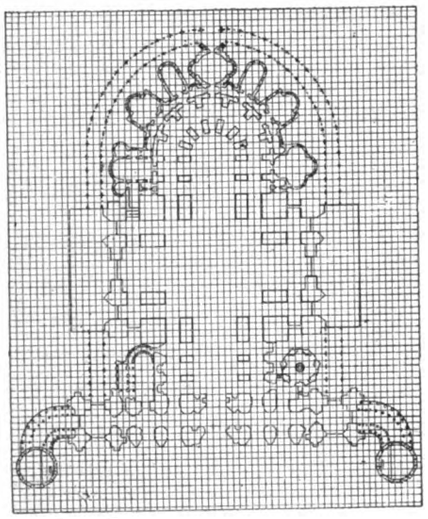
"The last half of the fourteenth century and the first half of the fifteenth were occupied in the wars against the English, the great national wars of France. This was the period of the struggle for the independence of the territory and the French name against foreign domination. . . . Even if there had been only the story of Joan of Arc, that would have furnished sufficient proof of the popular character of the event. Joan of Arc sprang from the people; it was the sentiments, the beliefs and the passions of the people that inspired and sustained her. She was always regarded with distrust, scorn and even hatred by the court and by the leaders of the army; the soldiers and the people were always on her side. It was the peasants of Lorraine who sent her to succor the bourgeois of Orleans. No circumstance indicates more clearly the popular character of this war and the feeling which the entire country brought to it.

"It was thus that the foundations of French nationality were laid. Down to the reign of the Valois monarchs the feudal character was prédominant in France; the French nation, the French spirit and French patriotism did not as yet exist. With the Valois rulers, France, properly so-called, came into being; it was in the course of their wars and amid the hazards of their fortunes that the nobility, the bourgeois and the peasants were for the first time united by a moral bond, by the bond of a common name, a common honor and a common desire to vanquish the foreigner." [1]

[To be continued.]

THE CATHEDRAL OF ST. JOHN THE DIVINE.

THE SECOND COMPETITION.



Ground Plan

WITH his design Mr. William Halsey Wood furnished the following description: —

IN presenting the accompanying studies for the projected Cathedral of St. John the Divine, to be erected in the city of New York, it may not seem amiss if I touch upon certain considerations which have prevailed with me in the conception and development, thus far, of the commanding subject which, by the favor of the Building-Committee, I am invited to consider.

1. The inception is unique: — to provide a Cathedral for the Metropolitan City and Diocese of the United States — a city at no distant date to rank or out-rank in population, material resources, social and political consequences the great cities of the old world — which shall impressively represent the faith and spirit of Anglo-Catholic Christianity, not only in its historic and æsthetic relations with the past, but in the greatness of its hopes and possibilities for the present and future, here in this new world.

2. The site is a bold, commanding elevation, overlooking an uninterrupted area of city, park, and outlying landscape, bounded by Long Island on the east, and the Palisades on the west.

The coming cathedral must rest on this most imposing coign of vantage, possibly, on Manhattan Island. Its distinction, therefore, is intensely localized, and must have perpetual significance for the multiplied millions of the coming ages.

It cannot be ignored; it should not be over-topped, nor obscured by any concievable structure. Its identity must be secure. In illustration of this vital point, let me remind you that twenty years ago the great spire of Trinity Church was the sole dominant feature of lower New York. It was a landmark for the great outlying harbor. It was read and known of all men. Now it is almost extinguished by the vast structures which the skill of the modern builder has lifted high in the air, in all directions round about it. The stranger approaching the city must now hunt up and identify Trinity spire, which has lost its structural significance and commanding importance.

The conviction was irresistible, therefore, that the new conditions of construction in secular and civil architecture compelled a correlative development along ecclesiologic and ecclesiastical lines. The new and difficult element I recognize is one of altitude. Under the crush of population and rapidly enhancing value of land, construction is driven upward with an irresistible impulse, and with a growing force and daring.

3. Again, the site is the curved summit of a rock-ledge looking abruptly down into the lap of Harlem plain, while sloping gracefully in other directions. The compelling corollary follows that the Cathedral must be firmly and securely anchored on this rock; and that its solidity and integrity of construction should be, even as an outgrowth of its granite foundation of mother rock: and that its prevailing contour and outlines should involve the idea of pyramidical solidity and permanency.

4. While the landscape, the magnitude of the metropolis, and the very rocky nature of the site itself were big with suggestions, in the evolution of style or manner, other elements were at work.

There should be a great cathedral, so fashioned that its individuality and distinction should continue uninterrupted as a mountain eminence. The spire alone, as a characteristic feature, seemed too feeble and too easily merged, among challenging and competing masses of upraised structures that menace. And yet the spire is the accepted symbol of spiritual aspiration the world over. The question of style then became pressing and dominant.

It cannot ignore modern problems and growth in the designers' and builders' art. It cannot break with the past, any more than the culture and teaching of the Church itself. Plainly here was room for no generically new thing or thought. Something that should bind past and present in one, that should incorporate the ethnic types of civilization, the pyramid of Egypt, the circle that girdles the landscape, the square of the ancient Temple, the oblong of the Basilica, the Cross of Basilica Church and Cathedral, even the dome itself — type of over-reaching heavens — why should not each and all of these ancient, historic types meet in a spirit of devout eclecticism in the general expression and final elaboration of the coming cathedral?

Here became conceivable a mass with an indestructible identity and distinction, quickened with each and all of the great structural energies in turn, all brought together, at one, in a Gothic relationship — a style which enters iuto the spiritual and ecclesiastical heredity of all English-derived Churchmanship.

The early Gothic, then, most catholic and comprehensive of its stages, should be chosen as the medium of this eclectic impression. Its simplicity, its friendliness to the Roman arch, its inexhaustible capacity for enrichment, as well as its breadth and largeness of effect, and its special adaptation to granite as the material pointed out by the very logic of the site, together with a confidence of its adaptibility for the geometric evolution of a true Gothic dome as the crowning central theme of the pile; all these and other lesser considerations determined the style of expression.

In the general outlines of the study submitted, will be observed, then, the prevalence of the pyramidical lines, from the apex of the central tower — dome — spire to each descending angle incident of the structure. This impression is accentuated by two lesser towers flanking the two spires, the uses of which are to be mentioned. A reference to the ground-plan points out the concurrence of the Square, the Circle and the Cross, in the general outline of the plan.

The central mass is raised to a great height, is monumental in suggestion, and with such symmetrical lines and well-defined stages that, under no conjunction of conceivable conditions can it be ignored, or its distinction jeopardized. Its solid stateliness culminates in a distinctly Gothic dome which harmonizes with the lines and motives of the general plan, while securing the dignity and importance of the general mass. It will be seen that the two spires

[1] Guizot: "*Histoire de la civilisation en Europe.*"

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assimilate with the dominant central spire; which, as will appear' is in and of itself the embodiment of the central idea of the edifice.

The apparent contrarieties involved in this style-problem, readily and almost insensibly gave way before the plastic Gothic as it grew into relation, form and outline. New wants and contingencies, unknown to the Gothic, were recognized and provided for. The possibilities of iron in architectural development solved many difficulties hitherto inexplicable, especially in the modelling of the central dome-spire.

The *ensemble*, therefore, is not a plagiarism nor a transplanted exotic, nor is it the echo or reflection of any foreign creation; neither is it a concession to any aggressive radicalism in architectural art. It is nothing more or less than a spontaneous and general outgrowth of the writer's structural conceptions as nurtured at the altar within recognized lines of artistic and æsthetic propriety.

5. What does this *ensemble* mean? How did it come to possess and dominate the thought and purpose of your architect?

The corporate name of the Cathedral, "St. John the Divine," explains the meaning and accounts for the inspiring motive of the design. Nowhere, save in the Book of the Revelations, could he look for the animating spirit of symbolism that should convert the mass of quarried stone into a living teacher. And so every foot and inch of the structure rests upon and is interpenetrated with this Apocalyptic symbolism. If literal orientation seemed impracticable —"on the north side lieth the city of the Great King" came into his thought as he swept the circle of the apse. The symbolism of "tens" gave a decimal analysis to every inch of lateral and upright space; making the succession of the different stages of construction, the interrelation of columns, windows, aisles and exits. The symbolism of "sevens" is repeated and multiplied indefinitely, as, for example, in the seven chapels or Churchly structures that encircle the head of the sanctuary, and by seven openings have access to the central altar from which they radiate. The symbolism of "twos" also is frequently exemplified. As every perfect gift is from above and cometh down from the Father of Light, so the great interior is illuminated by upraised windows, especially the four in the lantern, which is the lowest stage of the central dome-spire. Again "Jerusalem is built as a city at unity with itself," and so the shallow, wide transepts and nave of the same proportions gather up all the faithful into one great mass of worshippers, almost under the dome, where every eye shall see and every ear catch the sanctuary with its Eucharist and its hymn, and the pulpit with its living word.

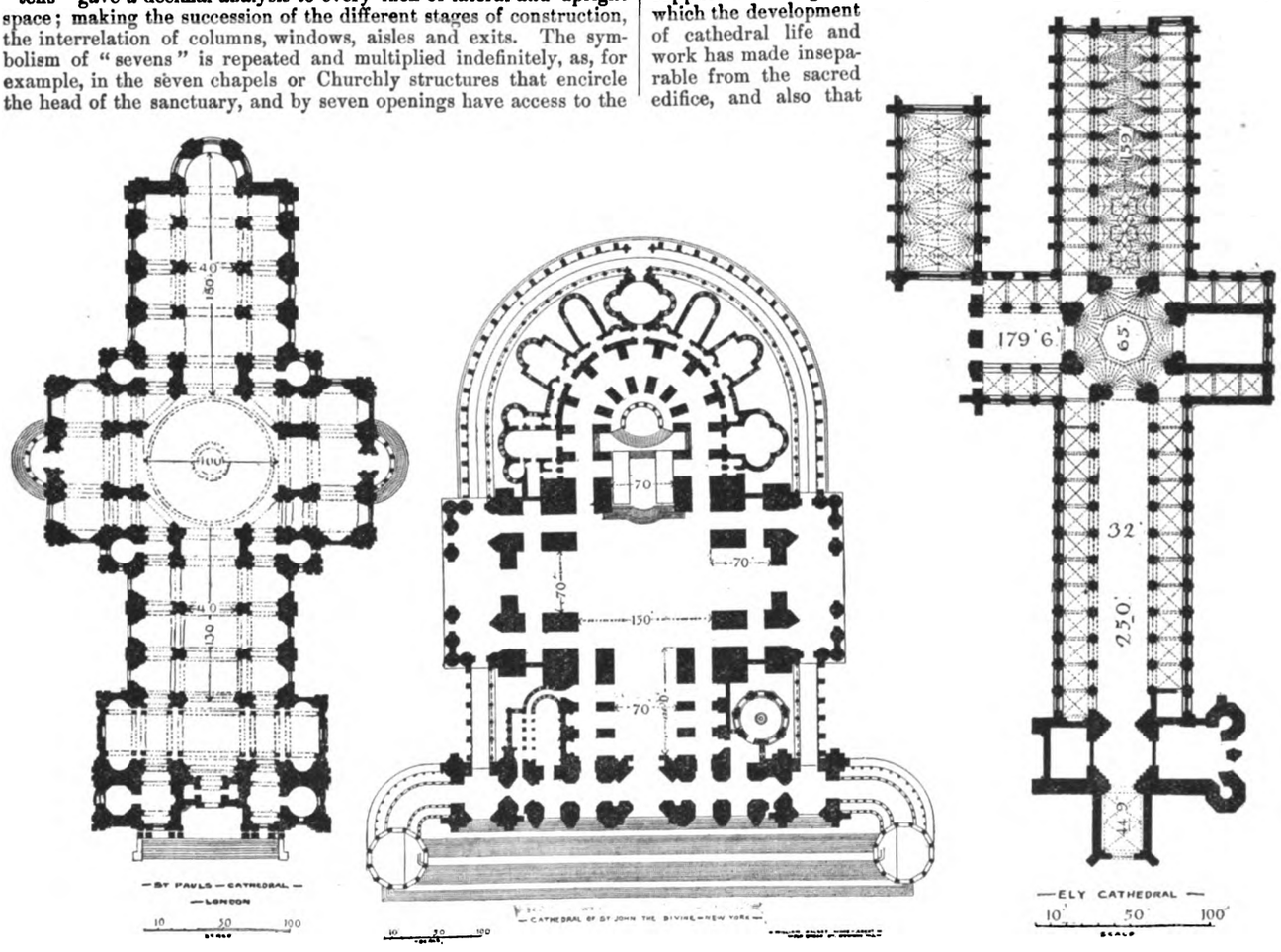
The modern church is both a worshipping and a preaching church. It was therefore but a prime necessity to sacrifice perspectives to the larger and dominant interests of the great congregation, who with us have outgrown merely spectacular worship.

The Ten Tribes, the Twelve Apostles, the Seven Churches, the Sevenfold Gift of the Holy Ghost, the Four Evangelists, the Twofold Natures of our Blessed Lord, Lawgiving and the Beatitudes, these are among the tremendous analogies that enter into and shape the architect's purposes.

"Jerusalem, the golden!
With milk and honey blest;
Beneath thy contemplation
Sink heart and voice oppresst.
I know not, O! I know not
What joys await us there;
What radiancy of glory,
What bliss beyond compare.
O none can tell thy bulwarks,
How gloriously they rise;
O none can tell thy capitals
Of beautiful device:

"Thy loveliness oppresses
All human thought and heart:
And none, O peace, O Syon,
Can sing thee as thou art.
New mansion of new people,
Whom God's own love and light
Promote, increase, make holy,
Identify, unite.
Thou City of the Angels!
Thou City of the Lord!
Whose everlasting music
Is the glorious decachorde!"

In the further elucidation of the ground-plan as figured, the ancient temple with its outlying courts, each helping in some divinely appointed way the great central service of sacrifice and worship, supplies an analogue for the symmetrical clustering of the "courts," which the development of cathedral life and work has made inseparable from the sacred edifice, and also that immediateness of approach which such a relation requires. "The Courts of the House of our God" symbolizes this unification of sacred uses and offices. Again "The hills stand about Jerusalem, even so standeth the Lord round about His people, from this time forth forevermore." — Ps. CXXV: 2.



Comparison of the Cathedral of St. John the Divine with St. Paul's and Ely Cathedrals.

The human body furnishes a modulus of proportion and relation, not alone in the Christian evolutions of architecture, but in the Greek if not other ethnic types. The interior, then, may exemplify this mystery of proportion, after this wise: the entire interior length from the sanctuary wall to the opposite end being 400 feet, the sanctuary, representing the head, will after the proportion of an eighth of the body, be 50 feet, as laid down in the plan. Similar homologies will be apparent in the details of the plan. In the sanctuary the symbolism of "sevens" prevails. The transepts and foot of the nave, below transept intersection, are of equal dimensions. The ambulatory which surrounds the choir and sanctuary separates them from the outlying line of seven chantries, chapter-house, etc., is raised a few steps above the main floor-level, and on each side, descending, meet the north and south aisles of the nave, which are

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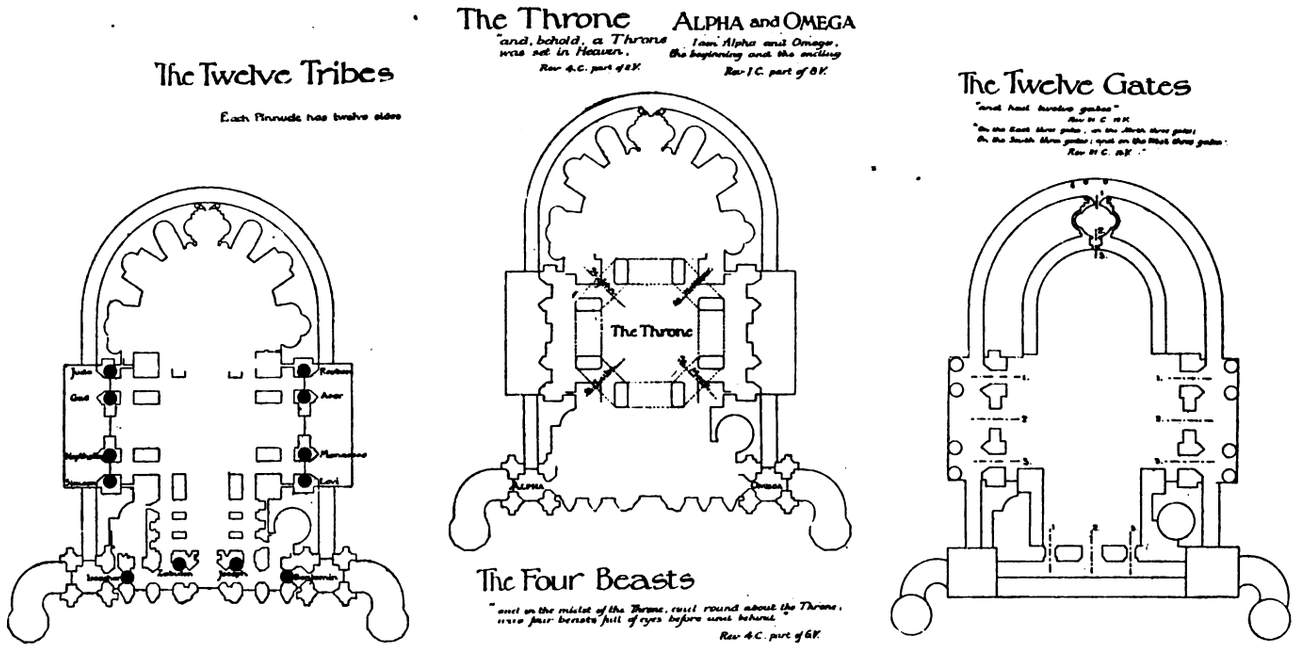
not used for sittings, but for processions and passageways. There are twelve exits and doorways, which serve the Cathedral on all its sides.

The nave is 70 feet wide and on a continuous line with the choir. The transepts are of the same width. The choir is figured at about 135 feet in length, and with place for 150 stalls on each side. There is room for supplemental rows of stalls for exceptional occasions. The choir, as in Canterbury Cathedral, is raised several paces above the nave, the sanctuary is also duly elevated above the choir, while the altar is approached by other additional paces. The



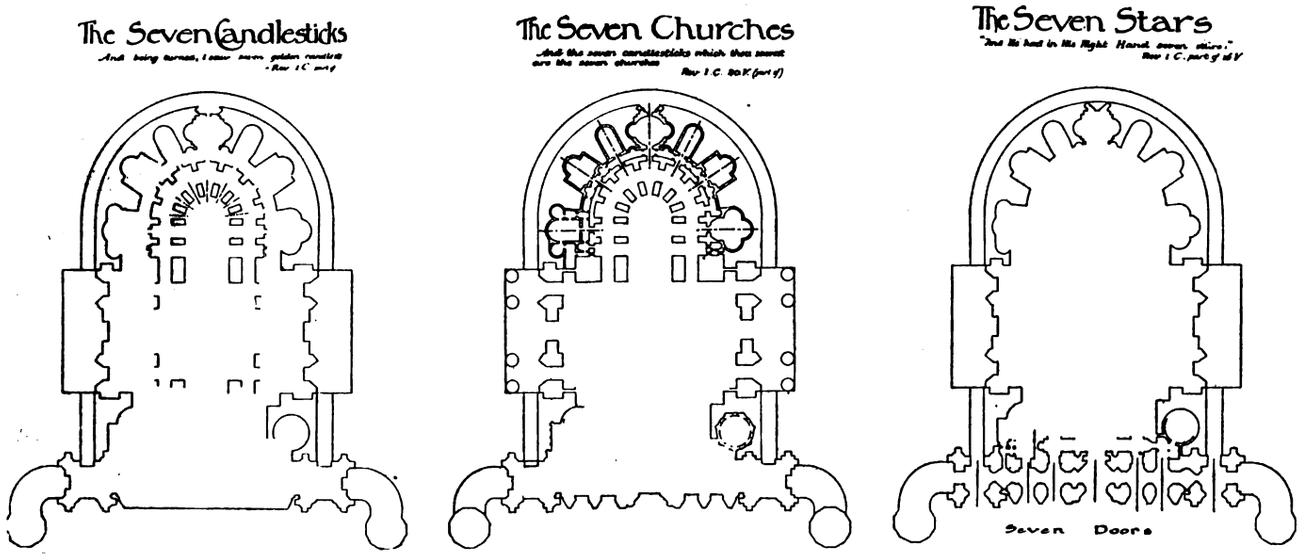
Bishop's throne is placed between the sanctuary and choir, south side (conventional), facing the Gospel side. The pulpit stands in the nave, detached, near the northwest corner (conventional), so placed that it commands altar and throne, as well as the entire choir and nave.

6. The triforium is arranged to extend around the entire Cathedral, directly above the vaulting of the side aisles, behind the main arches that rise from the spring line of the columns; above these steps the triforium is arranged in the usual form below the clerestory windows, making a complete circuit of the edifice. The clerestory windows are generously proportioned and intended to be

find an impressive analogue in the stratifications of native rock-masses, suggesting structural solidity as well as security.

7. The cloisters present a noteworthy feature in the general design. They lie in the plane of the main floor encincturing the entire Cathedral, and connecting with the interior by multiplied entrances. They approach the width of 20 feet and complete the actual square of the general ground-plan, after leaving the apse. Within the exterior angles, on the north and south sides of the west front (conventional), lie, first, the chapel proper, opening from the nave at the southwest corner, furnished and fitted for the daily religious offices, with sittings for several hundred worshippers; and second, opening from the southeast corner of the nave, the great baptistery, both with proper vestries and conveniences. This hurried *résumé* covers the principal features having immediate relation to the interior.

8. Concerning its ornamentation, it need only be observed that the construction of the sanctuary with its seven arched openings, gives opportunity for richly varied monumental and memorial treatment; while the numberless niches and angles discovered in ambulatories and aisles may be turned to similar pious uses. The great breadth of wall-spaces distinctive of the architectural type



finished as double walls. These different levels connect with the main floor by staircases in the turrets. The apse chancel in its exterior treatment contemplates flying-buttresses which divide the architectural features as indicated in the nave, with the several chantries, chapels, etc., grouped about the base. The lines of these different features run horizontally about the building, thus tying all masses in unbroken and harmonious unity. This principle of *horizontal unification* will be seen in the perspective elevations, indicating the stages of construction, supplying data of proportion, relation and altitudes, while knitting the great edifice together in visible lines of structural security. Furthermore, these horizontals

chosen, suggests the largest range of decoration in the way of colored mosaics, paintings and sculptures.

9. The disposition and provision for the music and choristers, have received careful consideration. The separate vestries for bishops and the clergy, are adjacent to those for the choristers, and are grouped outside the ambulatory near the southwest (conventional) angle of the choir. Processions therefore may be formed, each group emerging from its proper vestry into the ambulatory, following the choristers without confusion, the music sustained not only by the choir organ, at the north side (conventional), but by small choir organs which may be placed at intervals over the doorways

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of the chapels and chantries, with louvers to admit the sound, thus sustaining the pitch in the longest processional movements, the key-board of the choir organ commanding all manuals placed elsewhere by electric connections. A diffused grandeur of effect, a general breadth of praise will result from this dispersion of the organs into widely separated groups. Thus the great organ will be grouped in two divisions, placed over the north and south (conventional) entrance towers, corbelled upon stone arches in front of the triforium passageways. The key-board will be placed on the floor in the north transept (conventional) in view of the organist in choir.

Under such an arrangement, with supplemental orchestras effectually placed in the open spaces adjacent to the choir organ, a dignity and grandeur of musical delivery may be realized hitherto unprecedented in any cathedral, even in the old world.

10. The value of this musical relation will appear in a fresh if not stronger light, when it is considered that such a cathedral might be the music centre of a vast population, where the oratorios, the solemn Passion music of Bach, Haydn and others, the cantatas, motetts, masses and anthems of the great masters, might find the most perfect conditions conceivable for due and solemn interpretation, a consummation devoutly to be wished for, and one which must add the lustre of public admiration and gratitude to the more strictly ecclesiastical offices of the Cathedral. This, in effect would be an honest and long overdue recognition and restoration of that public art-relation, which for hundreds of years existed between the mediæval cathedrals and their outlying populations. It would be, practically, a fresh reinvestment of sacred art with those ancient societies that hallowed its beginnings, and which long since have suffered loss under the irreverent spirit of modern secularization.

It does not appear that more detailed comment upon the distinctive characteristics of the interior are called for at this stage of inquiry.

11. The approaches, general perspectives, cloisters and adjacent buildings, as located upon the ground-plan herewith, invite attention.

The plot of ground lies in an irregular square, the eastern boundary being a straight diagonal, leaving an unequal north and south boundary, the longer at the south. The plot is treated, however, as a complete square with the north and south boundaries equal, thus suggesting the north end as the most effective disposition of the apse, quite justifying the displacement of true orientation, in the better utilization of the prescribed area. The frontage, therefore, logically falls upon the southern line, which thus brings into the foreground of the Cathedral, the historic city, with Central Park broadly flanking the south and east.

The abrupt descent along the eastern boundary suggests a supplemental façade or point of commanding architectural significance, which logically suggests the highly accentuated esplanade, approached by series of steps, broken by structural masses in gradual approach to the Cathedral, with sculptural figures of angels.

This expedient while protecting the façade from the suggestion of abruptness, broadens and dignifies the *ensemble* as viewed from the east. The central tower-dome-spire, with the great spires at the angles of the southern front, secures the dignity and sufficiency of this broad eastern outlook. The main approach must be from the south, another logical warrant for the artificial orientation. Great and unbroken lines of steps approach this front across the entire length, accepting the eastward sloping of the site, an expedient that suggests security and solidity of foundation. Flanking each of these great spires are small supporting spires, which, while giving breadth to the foundation of the whole mass, and not foreign from the suggestion of the outlying cloistered colonnades of approach at St. Peter's, Rome, afford at the base, entrance to a well-lighted *sub-cloister* which underlies the entire length of the cloister proper, utilized as a carriage driveway, opening by stairways at proper intervals to the exits and entrances above, as well as to the doorway of the chapter-house, chapels and chantries. The practical utility of this expedient is at once apparent when account is taken of the concourse of carriages which must set-in towards the Cathedral, and of the great numbers of visiting clergy and laity who will thus approach it.

The disposition of diocesan buildings already contemplated, as the see-house, the deanery and clergy-house and schools, are merely indicated, together with the covered passageways connecting with the cloisters.

There are seven chief entrances marked by elevated archways; one in both the great eastern and western towers, one for the chapel, one for the baptistery and one for each of the side aisles, and one at the centre of the apse. The porch along the south front represents the ancient narthex, and the architectural features behind, appear to rise independently from it, and are treated as detached features with appropriate architectural symbolism. Ascending with the main structure each commanding motive recedes from the base line, thus contributing to the complex pyramidal idea which dominates the general design.

When observed from the street running east and west, at the front, the Cathedral will appear as the central structure flanked by the sides of an architectural quadrangle.

In order to impart dignity to the base, it will be noticed that both the east and west approaches are accentuated with suggestive architectural incident — with steps leading up to them from the street-levels in terraces, with open arches, pinnacles, etc., all subordinate to the transepts.

12. Attention is directed to the central tower-dome-spire, arisin above the intersection of nave and transepts. In obedience to th Byzantine or Oriental idea this is made to constitute the mai feature of the design, giving character and importance to the enti mass. Symbolically it is made to represent the enthroned so ereignty of God "over all," sitting upon the circle of the Heaven Rising from its quadrangle base, 150 feet square, the stage immed ately above the roof serves as a vast lantern, flooding the inner space of the nave with light from its lofty, broad windows. The ne stage is designed for the belfry, with its chimes and carrillons many tones and octaves. Gradually, amid a growing wealth of dec ration, supporting pinnacles, and chiselled gables, it is seen emergin from the square into the octagon, and from the octagon by almo imperceptible refinements of outline and ornamentation approachin the perfect circle of the great dome, sloping upward, in characteristi lines of true Gothic, to the spiral terminal that crowns the whol uplifted in the air. Mercy and Truth, Beauty and Strength are m together. Thus the square and cylindrical ideas, together with spi and dome, realize an artistic unification strictly within canons sound architectural development. The consummation of this co fessedly daring project lies easily within range of structural achiev ments, and is become, under the rapid march of scientific developme a far simpler matter than the dome of St. Paul's or the spires Salisbury or Lichfield.

There is majesty in this dominant, central expression of the Divi Providence, the herald of coming and departing day for the va metropolis as the first rays of sunrise and the last lustre of suns light up its glowing dome, and from the apex of that finial the gre tower-spires of the dome catch their key-note of significance, and fa into the pyramidal *ensemble*.

13. It may be asked what kind of Gothic is here exemplified? may be truthfully said that, beginning with its earliest period, modes of Gothic expression successively find place in the growt elaboration and ornamentation of the design, until the period flamboyant degeneracy.

It may be assumed as your architect's ideal, that, should the la great masters of this sublime type of ecclesiastical constructi "awake out of sleep," confronting the problems of the present, whi we are now attempting to solve, they might proceed upon such ecle tic lines as we are following, and thus triumphantly demonstrate t inexhaustible resources, the absolute plasticity and the supren utility of the Gothic art.

14. It may again be asked, and in reasonable good faith, "Is th American Gothic? And can Gothic put on National types?" T answer is plainly "Yes"; and, that when any recognized type of co struction proves unequal to the constantly shifting and growing quirements of advancing civilization it must, and righteously, suff loss and fall into decadence.

This study is confidently, yet with all modesty, advanced as demonstration of this practicability and plasticity of Gothic ide under the demands of American life and thought, ideals that h their main springs and inspirations among all the peoples, and th remain fruitfully in their service to this day and for coming day and we consider, then, that as there are recognized types of Anglica Norman, French, Italian and Spanish Gothic, so the same germin ideals under reverent and intelligent culture will develop a distinct American type of expression. These studies for the Cathedral St. John the Divine, then, may be looked upon as a practical attem at the realization of an American type of Gothic architecture, ina much as it provides for social conditions and exactions, accidental their origin, and altogether unknown and unlooked for so far as t great European builders are concerned.

In conclusion it is proper to observe that careful study has be made of the disintegrating forces of our local climate as discover in many edifices in stone, and structural precautions and safeguar resorted to in generals and details, throughout the design.

William Halsey Wood.

[The exhibition of Mr. Wood's drawings at the Academy of Design w attended with one untoward circumstance: attached to one of the plans upo separate slip of paper was a graphic scale which did not agree with the print description of the dimensions of the building nor did it "read with" the plan which it was attached in any way, and some who noticed the discrepancy not hesitate to express the belief that the scale was introduced merely to aid disguising the real size and great cost of the building. The fact that this bel may have had some currency, makes it desirable to reproduce the followi letters sent in answer to our letter pointing out that a blunder had probat been made by some irresponsible draughtsman.]

Newark, N. J., April 11, 1891.

To the Editors of the American Architect: —

Dear Sirs, — I send these tracings for illustration in connection wi my design to show that the symbolism is only to be represented in t stained-glass windows, statuary, etc. I fear there is some misund standing regarding this, and if you will kindly publish them in conn tion with my other Cathedral drawings, I would feel grateful.

I do not want this symbolism confused with the walls, but put in t usual place for such decorations.

I know you will appreciate all this and the fact how difficult it is keep run of these details when one is so busy with other matters.

My plans were in four months before the others, and all in acc with the Trustees' wishes. So now the whole subject comes to

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April 11, 1891.

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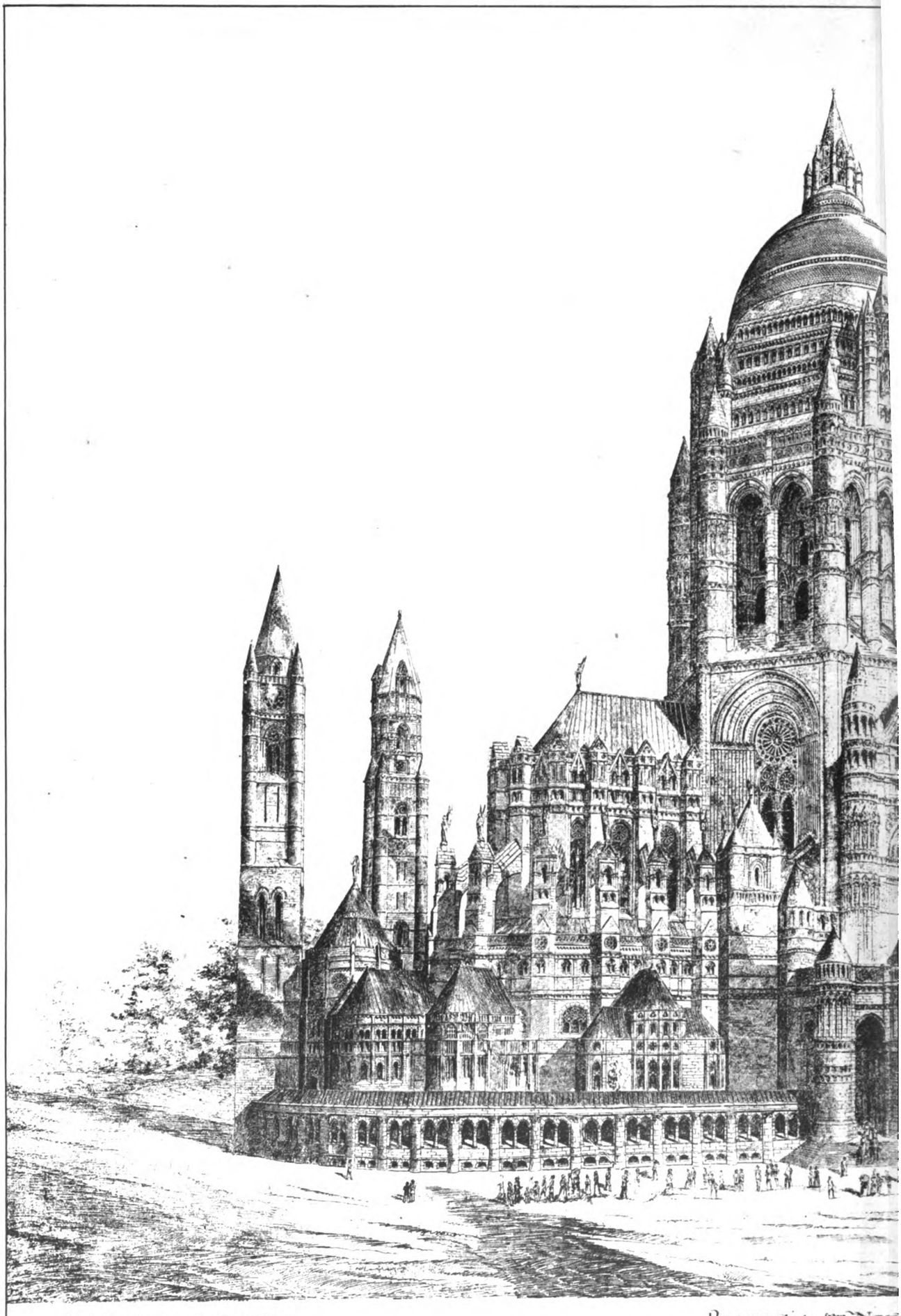

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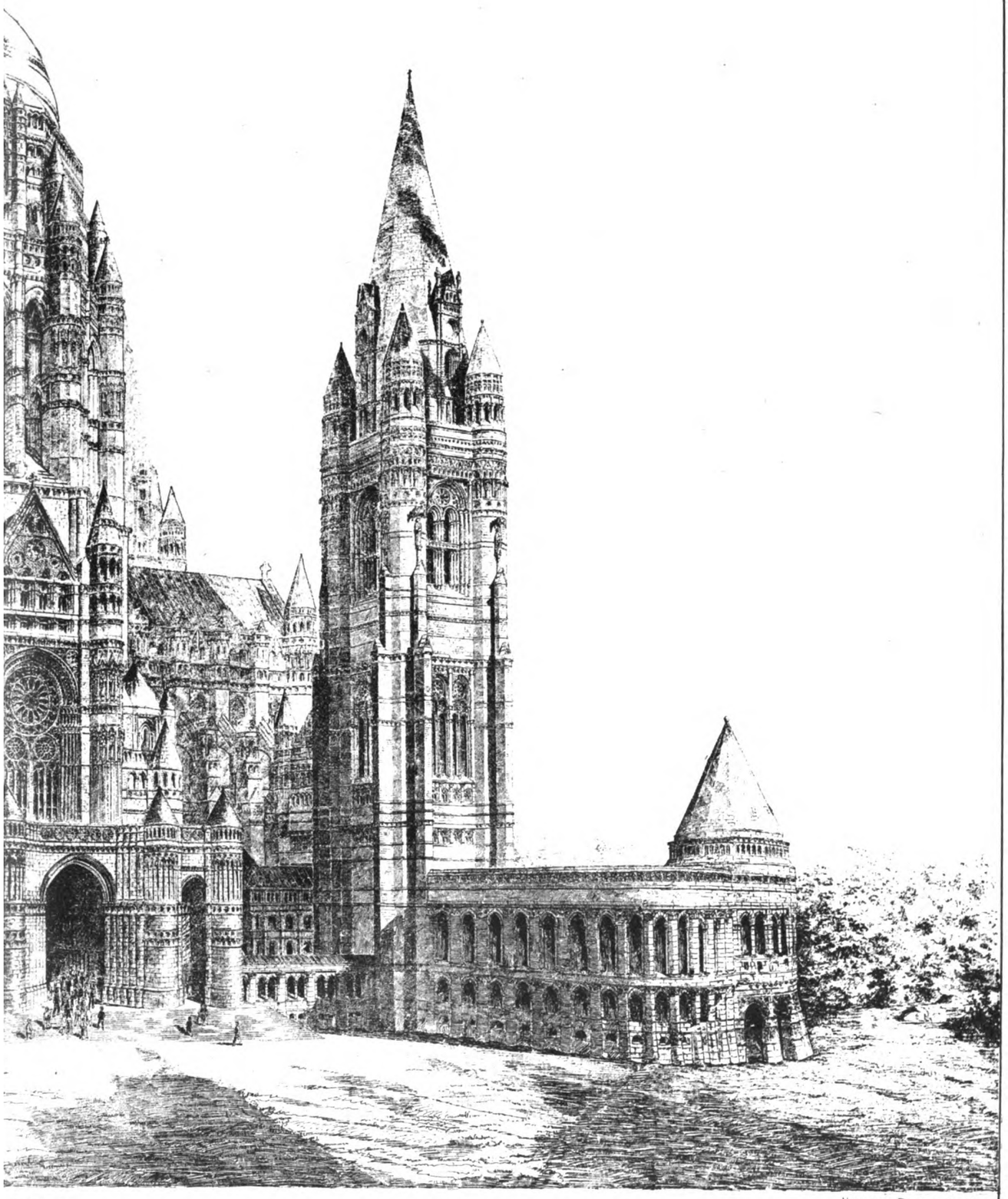
Competitive Design for the Cathedral of St. John the Divine New York

W. HALSEY WOOD, ARCH'T,



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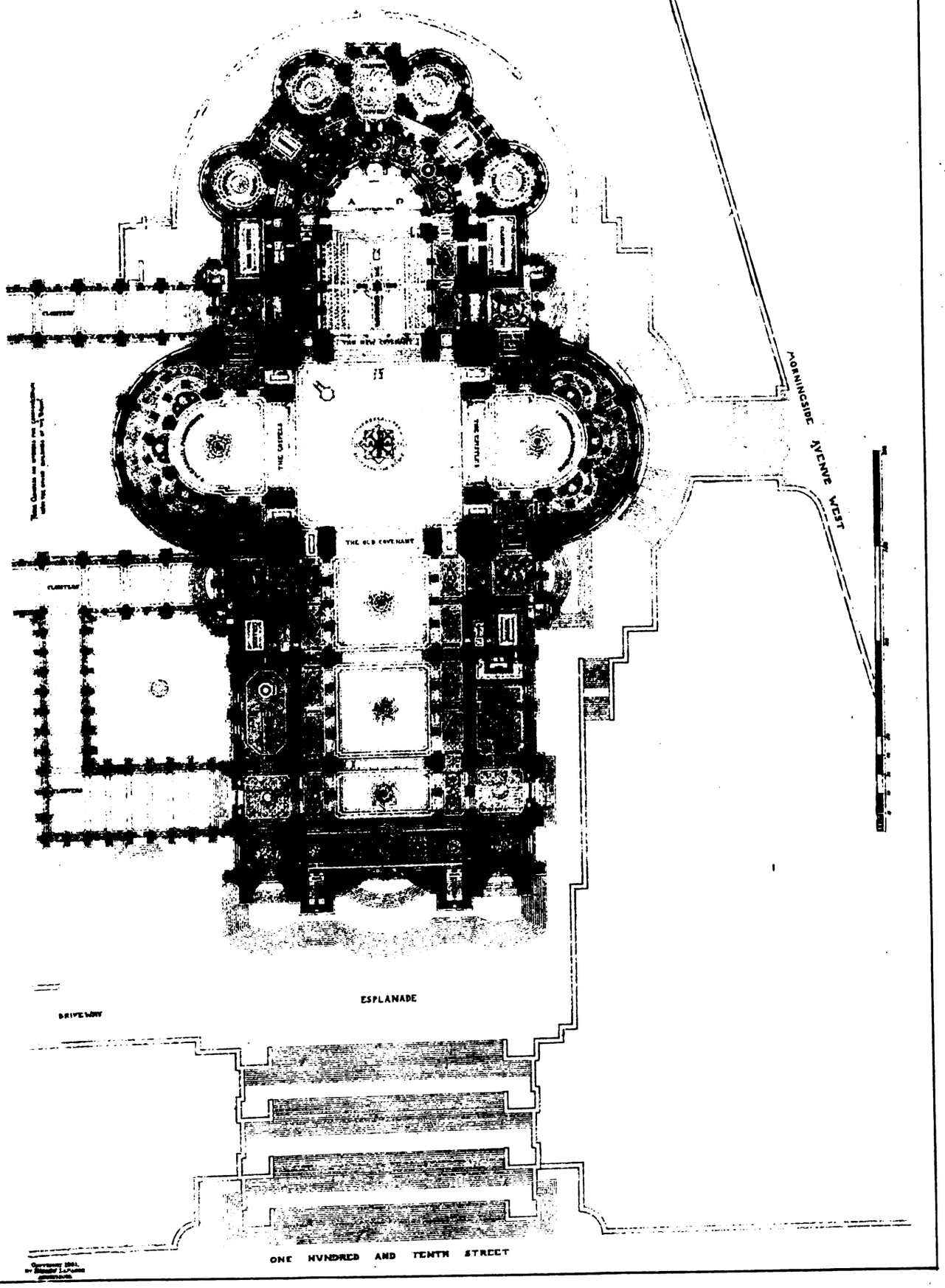

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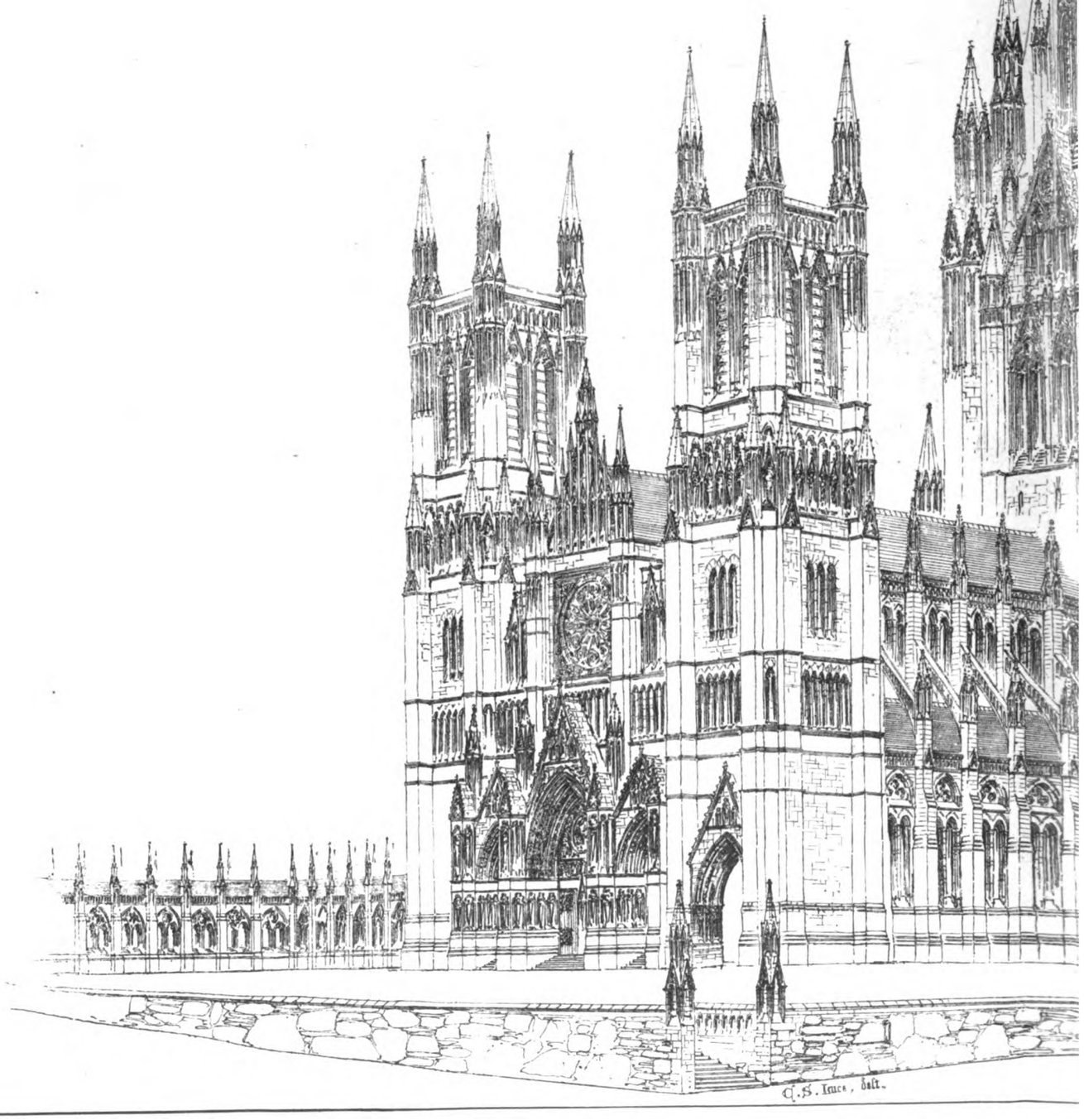

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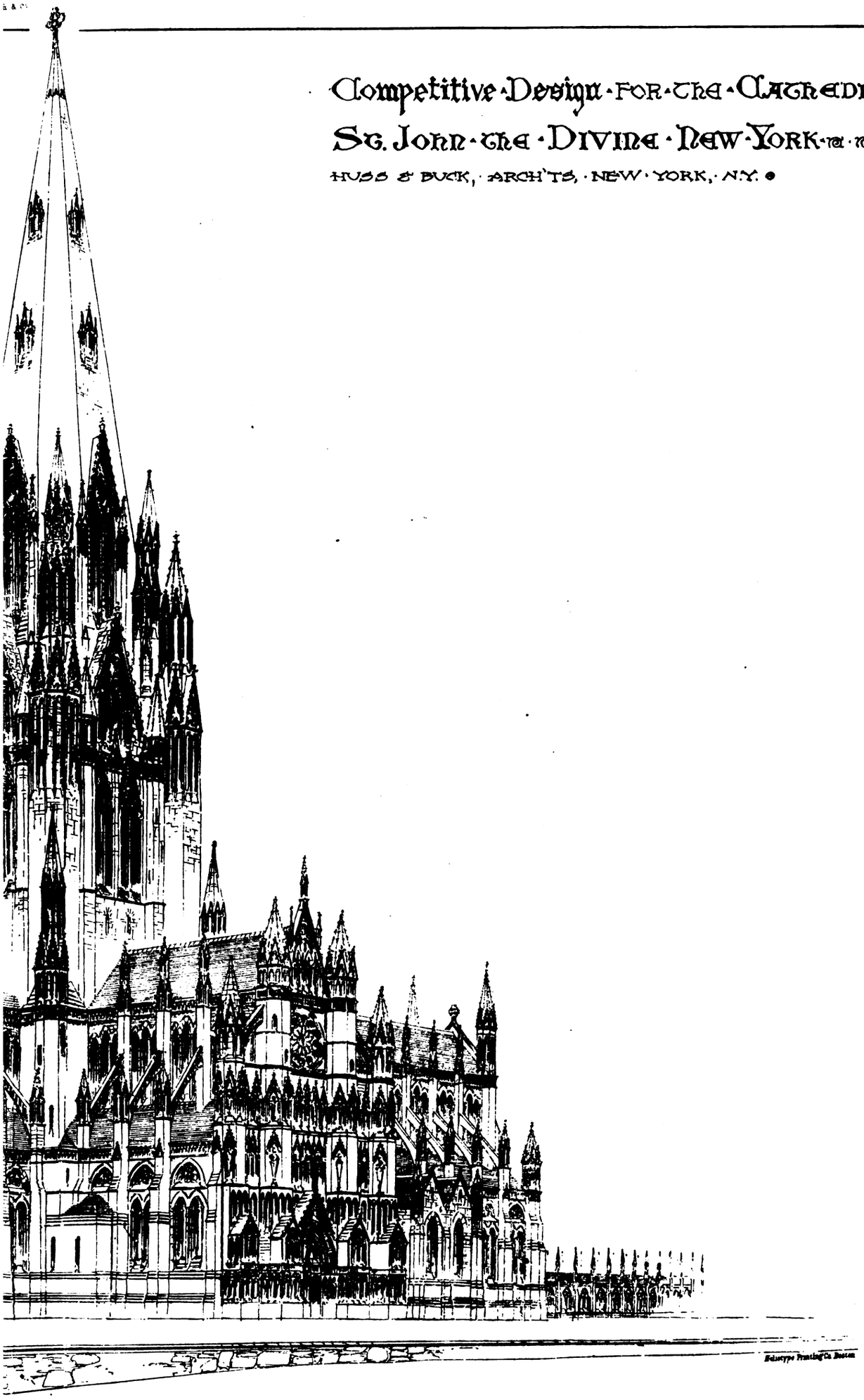

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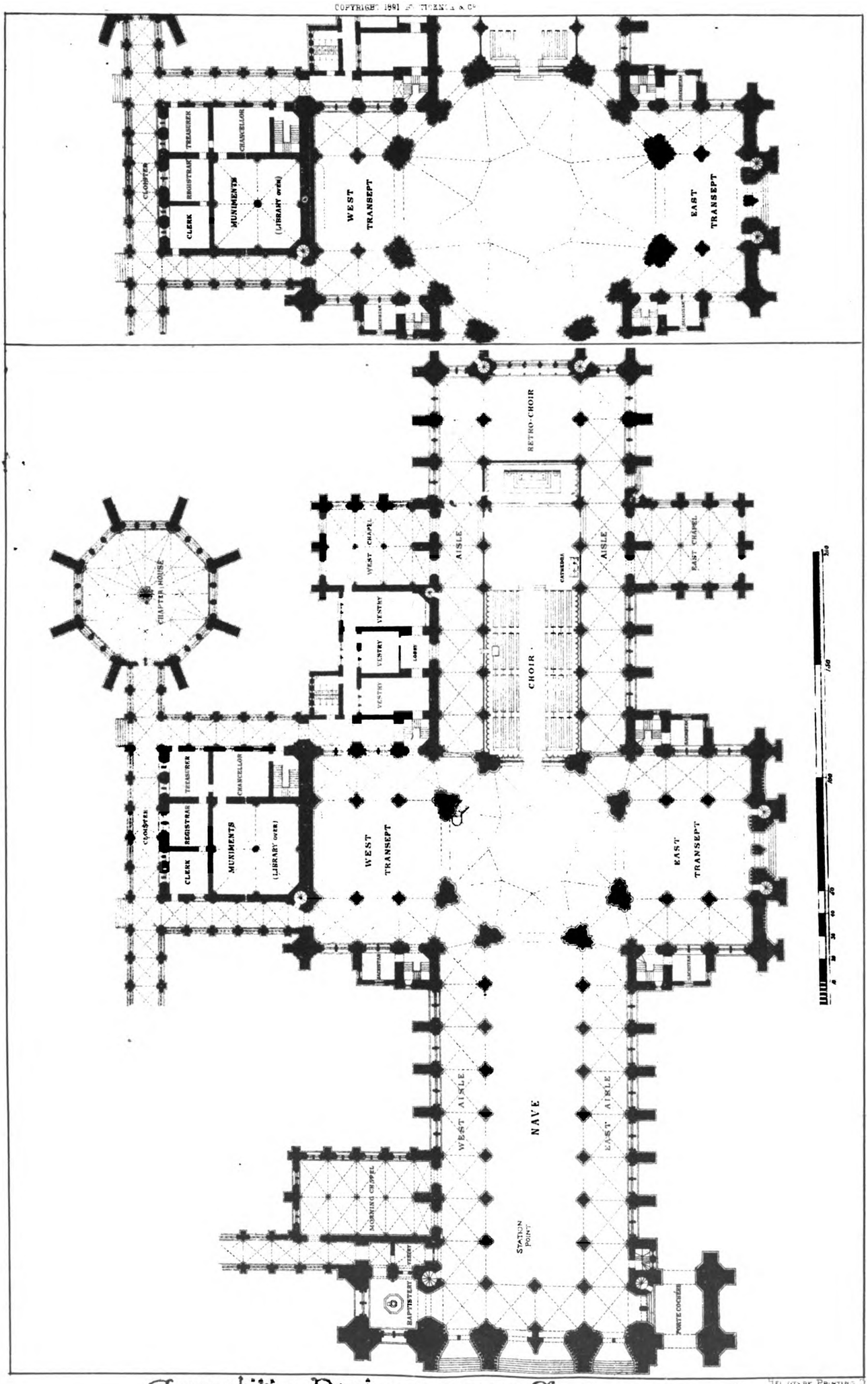

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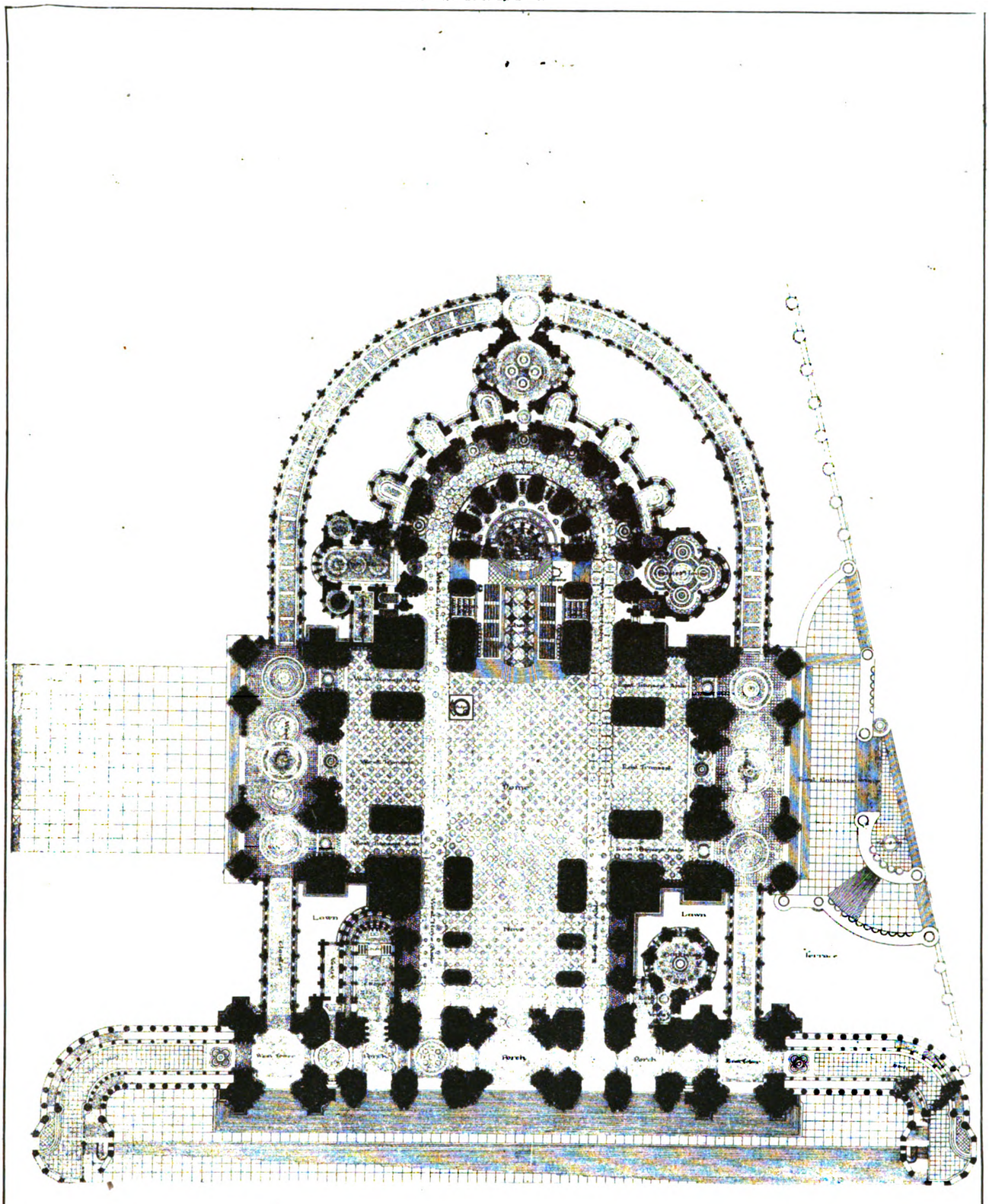

Competitive Design for the Cathedral of St. John the Divine New York

W. Halsey Wood, Arch't, Newark, N.J.

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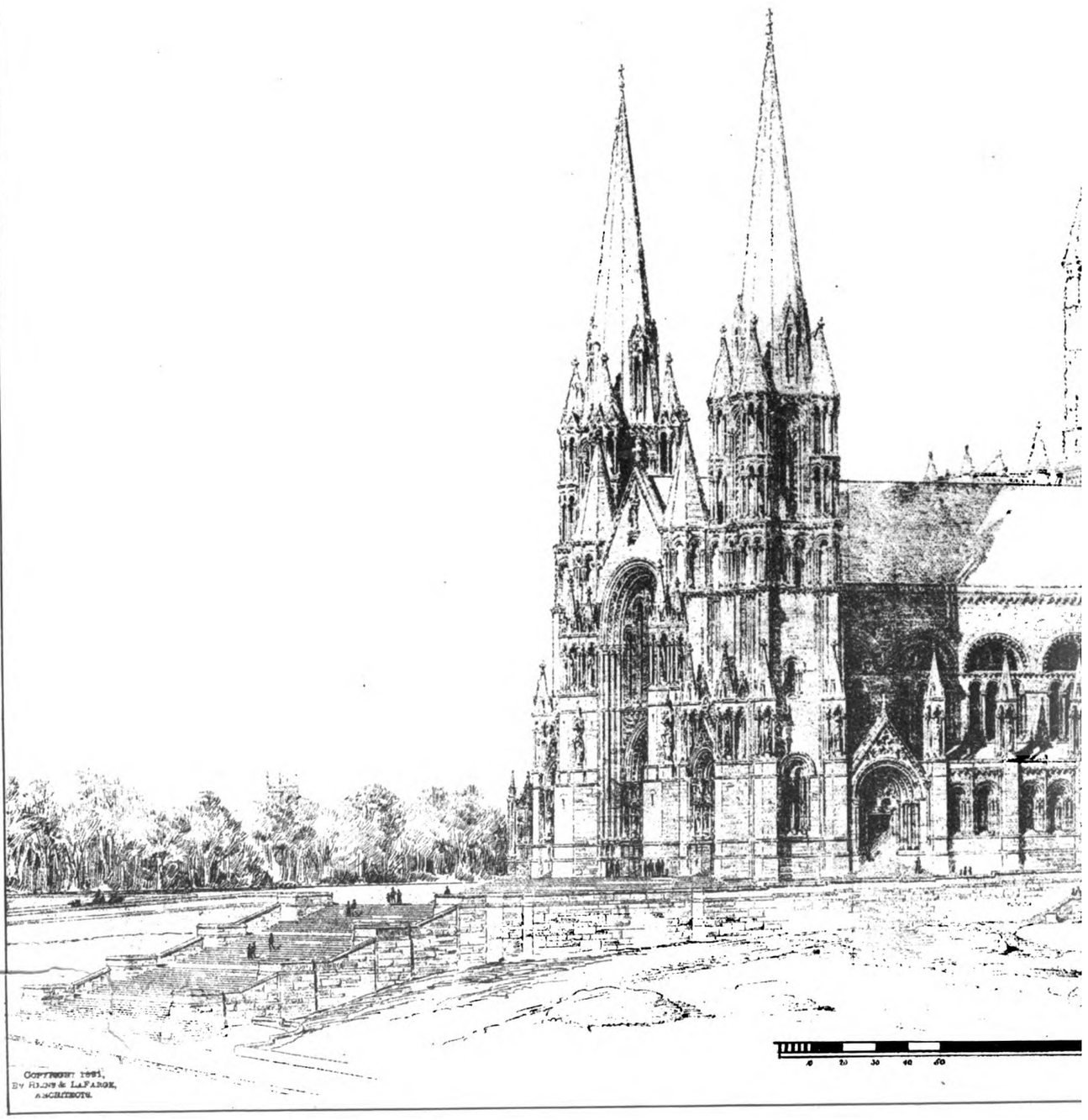

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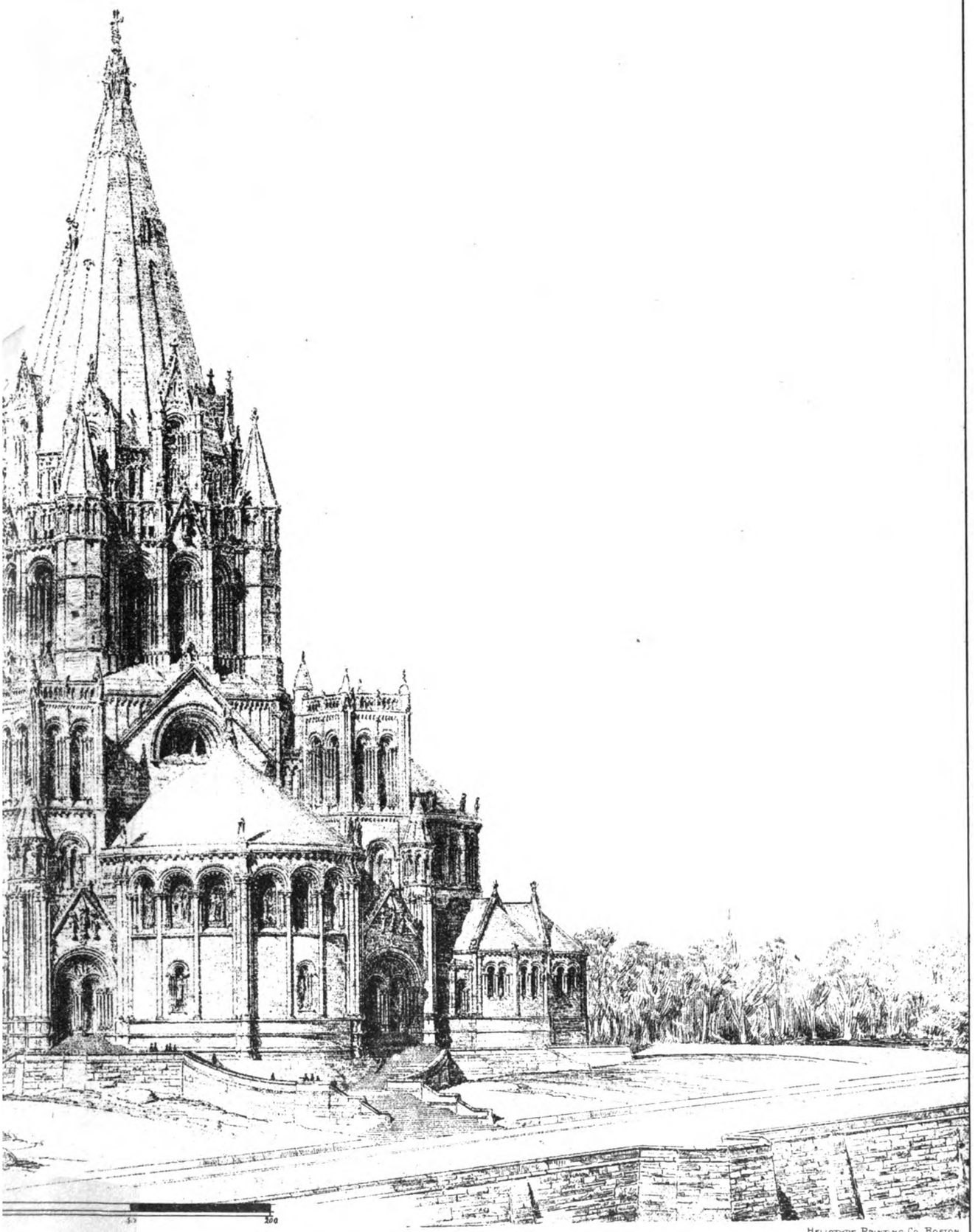

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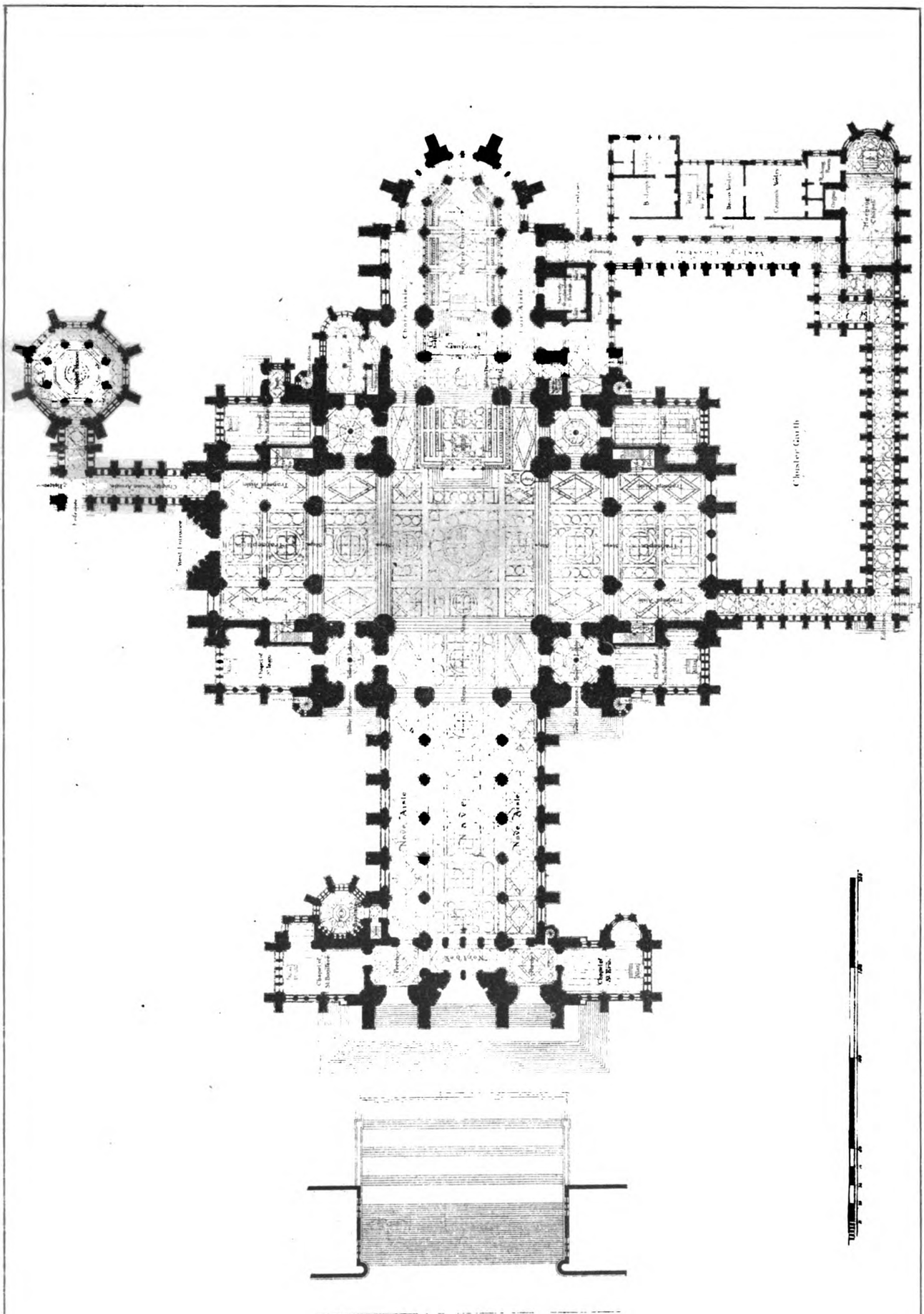

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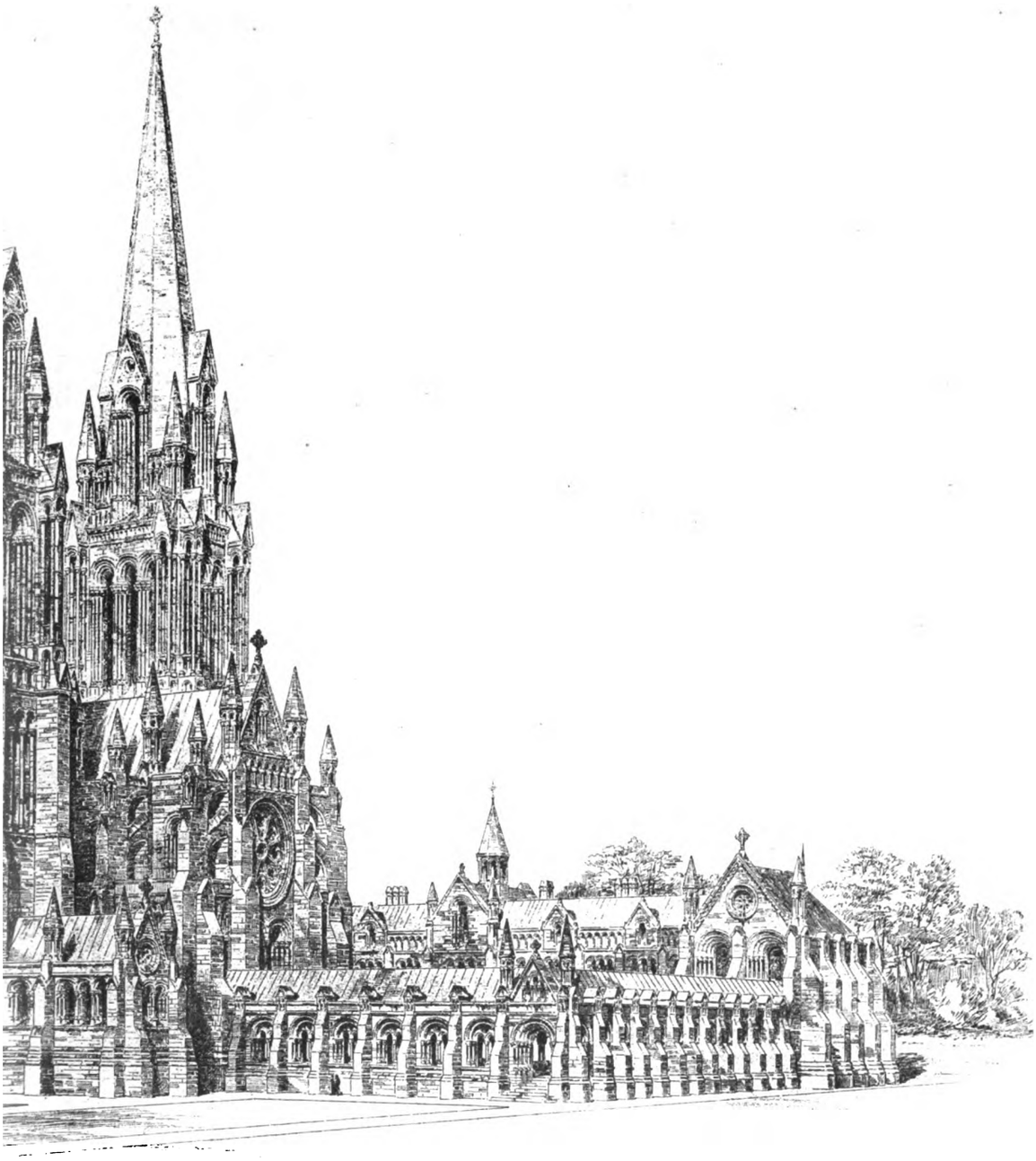

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almost afresh and I would like to defend just a few points which have been raised up against the symbolism.

Very truly yours, WILLIAM HALSEY WOOD.

NEWARK, N. J., April 13, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — I found (on investigation) the pinned scale attached to the ground-plan — which should have shown a 1-16 inch scale — hence the confusion. This is now corrected and an explanation reads at the foot of this plan:

"Ground plan submitted in the first competition, scale 1-16 inch to the foot, an alternative plan sent in the second competition."

I send herewith the corrected combination of the two plans which I should like published in the *American Architect.* Kindly put the lettering underneath as per the enclosed.

These two suggestions will give my ideas regarding the 400 feet which the Trustees requested should be the length. The 1-16 inch scale will provide for an interior length of 400 feet, and the 1-10 scale an exterior length of the same (about).

The adoption of the 1-16 inch ground-plan should simply be to rearrange the exterior without increasing the altitude.

To explain the reasons for sending in the plans — and taking the liberty of making the drawings to a tenth scale — and working my drawings up, I need only quote again the following from the final instructions.

"Voted: — That each architect be allowed to submit his original plan, *and another set according to his discretion.*"

And then to show the scope given regarding the conception, I need only quote another clause:

"Voted: — That the instructions for the second competition be modified by striking out the part relative to estimates."

On the whole, the instructions were such as to bring out the conception in elaborate sketches. The designs being subject to alteration and further consultation.

I write this hastily that you may put in such form as you may see fit to better clear up this seeming misunderstanding, and I thank you for pointing out the error. I am, dear sirs,

Yours very truly, WILLIAM HALSEY WOOD.

THE POTTER AND ROBERTSON DESIGN.

THE design submitted by Messrs. W. A. Potter and R. H. Robertson was accompanied with the following explanatory statement: —

Gentlemen, — To say that any architectural work to be really great must fitly express the spirit of the age in which it is reared, so far as this spirit is embodied in the purpose of the work, is to state an axiom. Slavishly to copy the plan and arrangement of any mediæval cathedral is to ignore the history of the Church since that period; and in the consideration of such a problem as that involved in the planning of a cathedral church, the point of view from which the nineteenth-century architect must approach it must of necessity be different from what it would have been in the thirteenth century.

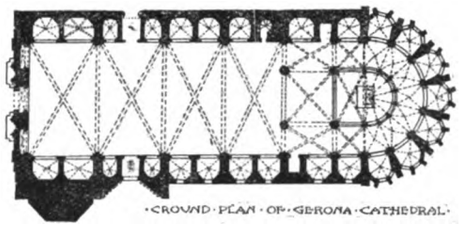
The fact that the conditions are changed the architect must recognize, and he must further recognize that if his work is to be truly great these changed conditions exist as a large factor in the problem which he is desired to solve.

Among these conditions now existing that which demands proper provision for fitly preaching the Word of God seems to hold a pre-eminent place, and for this the mediæval cathedral church plan makes no adequate provision.

A large, central, unobstructed space would seem to be the starting-point in planning the cathedral church of to-day and while recognizing this fact it is of equal importance, if it be possible to do so, that the traditions and affections which have insensibly clustered around the cathedral as it is usually planned should not be swept aside. The ritual and liturgy of the Church demand opportunity for their fit presentation and this as well must be accepted as part of the problem.

Holding these general principles as of paramount importance they have been made the basis on which the scheme designated by the name "*Gerona*" has been developed. This name, which is that of a city of Spain, has been placed upon the drawings as it was from the plan of its Cathedral Church that the suggestion on which this design has been based and elaborated was received. Assuming that the tendency of the Church to-day is to bring the services and the worshippers into closer contact and to permit the preacher to be heard, it follows that the first requisite is the incorporation of a large central area in the plan. An examination of the methods by which the architects of the past have accomplished this would show that it has been done almost without exception in connection with the use of the dome, a feature of Pagan architecture which, while having been successfully adopted in the Mohammedan and Renaissance styles, and in a lesser degree in such transitional styles as the Byzantine and Romanesque, has never been incorporated with the Gothic style with any measure of success. The Pantheon at Rome, the Church of Santa Sophia, the mosques of Egypt and India and the later churches, Santa Maria del Fiore of Florence, St. Peter's at Rome, and St. Paul's, London, will suggest themselves as instances where the dome-covering has been used.

The late Sir Gilbert Scott, while asserting that the dome might be successfully incorporated with the Gothic style, failed to achieve its adaptation and it may well be held, as it is by many of the most eminent critics, that the spirit of the dome, when developed beyond certain very circumscribed limits, is so diametrically opposed to the spirit of Gothic architecture that the two are not compatible. One disadvantage which all dome-covered spaces have presented, has been that the vistas through the aisles, one of the most beautiful features of the mediæval cathedral, have been destroyed by the introduction of piers in the line of the aisles. It will be seen by reference to the plan herewith submitted that the whole length of the aisles is unobstructed and the vistas preserved. Beyond the fact that the introduction of the piers to carry the dome obstructs the vista through the aisles, is the fact that the space covered by the dome cannot exceed in diameter the width of the nave and aisles combined. In other words the space covered by the dome cannot be more than an octagon whose diameter is this combined width. In this instance had the dome-form been used the main central space would have been an octagon of only 86 feet diameter, whereas by the present arrangement of vaults this space is nearly trebled, and the superiority of this arrangement, therefore, cannot be called in question.



GROUND PLAN OF GERONA CATHEDRAL

In the plan of the Cathedral of Gerona which is composed of a nave of single span with the usual arrangement of the nave and aisles of the choir opening into it (the nave proper being 73 feet in clear width) it is believed that a scheme exists which, largely modified from the model, offers a method by which the central space which is here held to be indispensable, the fundamental idea of the cathedral church of to-day, can be achieved. No less an authority than the late George Edmund Street, the foremost English architect of his time and an unimpeachable authority, writes of this building in terms of the highest admiration.

The scheme herewith presented and which is based upon the conjunction of a single-span nave with a choir of the usual arrangement of nave and aisles, as shown in the Cathedral Church of Gerona, consists of a central space 86 feet square with four lesser spaces placed at the four faces of the central square, forming a space, cruciform in plan and unobstructed by columns, containing 21,000 square feet of floor-space, an achievement which, it is believed, is unprecedented in the whole range of the Gothic style.

To be able to seat nearly three thousand people within a radius of not more than 115 feet of the preacher has never been accomplished in any cathedral of the usual type, certainly not in any building of the Gothic style. The very fact that the usual tripartite arrangement of nave and aisles has been retained and grouped around this central space adds to its majesty and grandeur through contrast, and the nave and aisles of the nave, transepts and choir are reacted upon by the simplicity of arrangement and detail of the great central feature.

The power of contrast, one of the most, if not the most potent element which the architect has at his command, is here attained in a very striking degree. On this point Mr. Street writing of the Gerona example, says:

"At the east end of the nave" (a nave of one span) "three arches open into the choir and its aisles. Here it is that the magnificence of the scheme is most fully realized. A single nave and choir, all of the same enormous size would have been immeasurable by the eye and would to a great extent have been thrown away. Here, however, the lofty choir and aisles with their many subdivisions give an extraordinary impression of size to the vast vault of the nave and make it look even larger than it is." Since the treatment so highly praised has in the design herewith presented been adopted not only for the choir but for the nave proper and the transepts, the words above quoted may without impropriety be applied to it, and it should be borne in mind that this is not the opinion of an eminent critic upon a theory of design but upon an accomplished fact of building.

The constructive difficulty of carrying arches and vaults over a space of such extent as that which the plan involves, lies in furnishing proper abutment for the outward thrust of the arches and vaults. This is met by the four towers, placed in the angles as shown on the plan where they receive and counteract by their mass and the weight of their walls the outward thrust of the arches and the vaults of the crossing.

If the premise laid down be correct — that is, the necessity for this large central space in a Cathedral Church — it is claimed for this design that it furnishes it in a manner not only most novel but entirely practicable; and it is further claimed that the result will justly challenge universal admiration, as embodying the expression of the idea most essential to be expressed, and at the same time as retaining all the essential features of the usual plan of a cathedral church thus perpetuating its traditions and characteristics and recognizing the affection with which they are regarded.

That the services may be brought nearer to the worshippers, the choir-stalls have been brought boldly into the north arm of the cruciform space and outside the choir arch. They are raised well above the level of the central space or crossing and are enclosed by a chancel-screen. The advantages of this arrangement seem to need no argument. The details of the screen and stalls may be combined to produce an effect of the highest beauty.

The placing of the choir-stalls shown on the plan is an innovation,

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but there is, it is believed, no liturgical objection which can be raised against this arrangement, and since it permits of the nearer approach of the congregation to the services it possesses a distinct practical advantage which cannot be ignored. The effectiveness of the choral service, as may readily be seen, will be greatly enhanced by the acoustic advantages which this position affords. Again precedent has been laid aside in the treatment of the floor-levels. While this may, perhaps, be thought too bold an innovation, it is, together with the proposed position of the choir-stalls, the logical sequence of the premise which claims the central unobstructed space as the necessary starting-point of the design. If this premise is sound, as it is held to be, then these two features of arrangement naturally follow — but it may be added that while they are suggested and their adoption advised — their introduction must not be looked upon as necessary to the other features of the design. They may be abandoned and the usual treatment followed, without modification of the general arrangement. The reasons for placing the choir-stalls outside the choir arch have been given in brief. A word as to the difference of floor-levels which is suggested. When the limit of length has been fixed, as is the case in this instance, the large central space can be secured only at the expense of the length of the nave proper and the choir. It must be admitted, that while exceeding in total length the limit suggested by the Trustees in their instructions to the architects, this design would be bettered by the introduction of an additional bay to the length of the nave and choir. To increase the appearance of internal length in the nave is one reason for the introduction of this difference of floor-levels, and that this would be its effect may not be doubted.

The eye is unable to follow the floor-level, losing it at the point at which the steps are introduced and not catching it again until it reaches the point at which the chancel-steps rise.

The possibility of scaling the distance by the eye is removed, and the appearance of the length greatly augmented thereby. Any one who has seen one of the Spanish churches in which the altar and choir are placed in opposite raised galleries will have noticed how greatly this arrangement, even in small churches, has increased their apparent size, and although the treatment of floor-levels is not, in this instance, carried to any such length, the same effect must follow, though in lesser degree. But another and stronger reason has led to the adoption of these different floor-levels, which is that to the preacher, the congregation as it recedes from him rises in higher levels, one tier above another, thus bringing him into closer connection with his hearers, and them into closer contact with him. This is a positive advantage, but it were unwise to seek to gain it at the loss of Churchly effect.

There are, however, instances without number in which the introduction of steps occurs, and while not precisely in the way here suggested, in such way at least as to lead to the conclusion that if followed out it could in no way mar the general effect of the building, nor take from it its Churchly character.

Recognizing the value of the suggestions contained in an article which appeared in *The Churchman*, six chapels have been incorporated with the design for the use of non-English speaking congregations. The cosmopolitan character of the City of New York is thus recognized in the plan of its Cathedral Church and an additional interest thereby added to the building. These chapels are so situated and so arranged that services may be held in them while the main central service is in progress, the services in no way interfering with one another. The spectacle of a cathedral church in which the service of the Church was being performed in six or more languages at the same moment could not be paralleled in any other city of the world, and must of necessity arouse supreme interest.

The scheme proposed by the plans designated "*Gerona*," possesses one advantage which seems of the very highest value: it is that a part of the design, and that the most important from the practical point of view, can be carried out with the result that so much of it as is completed, shall be a concrete and finished work. Reference is made to the central space with its towers, and the choir. These two parts of the cathedral church are really those which are of practical value for use. The nave and transepts complete the monument in its architectural entirety. It may be necessary to build different parts of the church at different times, and if this be so, it is of no small moment that such parts as may be built in the near future shall not only furnish in the best way what is of most practical value, but furnish it also in a completed form. The nave and transepts and, if need be, the spires may be built at such times as circumstances may permit. While the effect of the four spires would be a very noble, and a fit crown for this city, it would be possible to abandon two of them, finishing the two abandoned with lower roofs or lanterns. But, as has been suggested, the towers themselves, up to a certain height, are constructive necessities — indispensable adjuncts to the great vault of the crossing.

The section shows the three divisions of the nave, the main arcade, the triforium and the clerestory. Reference to it will show the galleries, which have been introduced in the towers over the tower lobbies, two of which contain the organs, and two can be used for sittings. It should be stated that the triforium arcade has been returned one bay back of the high aisle arches, and carried to the outside wall at that point, thus permitting the arches at each side of the central arches to be carried up to a very considerable height, and so composing well with these larger arches. A gallery is introduced in the south end of the Church over the narthex: a position well-suited for a supplemental or great organ. The two side entrances of the south front are open to the air, and are in height the full height of the arches opening into them, somewhat after the manner of Peterborough. The crypt is placed under the choir and a stairway leading to it is found in the crypt lobby. The choir aisles have been stopped at the line of the centre of the apse, and a narrow ambulatory carried around the latter. This treatment has been adopted as affording greater depth to the choir.

Interior Dimensions. — The extreme length of the interior of the building from the inside of south wall over the gallery to the inside of apse wall is 446 feet. The total width across the nave and aisles of the nave, transepts and choir is 84 feet. The width of the transepts from wall to wall is 283 feet.

The central square measures 86 feet each way and the arms of the cruciform central space are 86 feet by 37 feet.

From centre to centre of nave piers 43 feet.

Depth from front of chancel screen to apse wall 164 feet.

Depth of choir proper 128 feet.

Number of stalls in choir 124.

Choir stalls 72.

Number of stalls in retro-choir, 160.

The baptistery is placed at the west side of the nave, near the entrance and the opening to it is in the first bay next the south front. It is an octagon of 26 feet diameter.

The chapter-house, octagonal in plan and treated, as is unusual, with a clerestory, is placed at the corner of the west transept and connected to it by a colonnaded arcade.

The vestries are placed to the east of the choir and contain besides the usual accomodation for the bishop, the dean and canons, a library and choir vestry in the second story.

Contiguous to the vestry is the morning chapel.

A cloister has been designed in connection with the vestry and it and the porch of the morning chapel are connected with the east transept by an arcade enclosing the cloister-garth.

Near the entrance from the vestry to the choir is placed a sacristy, with a strong vault for the reception of the plate and ornaments of the altar.

Stairways, ample in number, have been introduced into the plan which give access to all parts of the structure for the purposes of repairs, etc.

As the ground-plan in this scheme is all-important and all-embracing, as it must be in any good architectural work, its description has been given somewhat at length.

The elevations and perspective view speak for themselves, but it should be clearly stated that they must be considered only as what they really are, suggestive studies. They cannot be considered as more than generally suggesting the mass of the building and the treatment of its main features. Properly to develop all the details of so complicated a building must require months of serious and laborious study.

It has been the aim to rely rather upon the mass and dignity of the main features for an effect of majesty and solemnity rather than upon elaborate detail.

The pointed arch has been used in the vaulting of the ceilings, the round arch for all other arches and openings, such as doors and windows. In fact all exterior openings are formed with the round arch. For this it is perhaps hardly necessary to say that ample precedent exists.

The material of which the Cathedral should be built is one of such moment and one which will require such extended investigation to be made that the matter has received only very general consideration. No recommendation therefore is made.

In conclusion, the attention of the Trustees is called to the fact that in the ground-plan of any scheme which may be presented for their consideration, the real value of such scheme must be found.

To design a cathedral church is quite a different thing from adapting a mediæval church to the uses of the Church to-day as far as adaptation is possible and it is only in the ground-plans, by the arrangement and grouping of the various parts, that any development from the model of the mediæval cathedral church can be shown.

It is claimed for the scheme herewith submitted that the true plan of endeavoring to develop an appropriate and harmonious design has been followed. What is believed to be the peculiar characteristic of the Church of this century in contradistinction to that of the time at which the great cathedral churches of the world were evolved has been the starting-point from which the scheme was originated, and it has been the guiding principle throughout in the development of this scheme. This the ground-plan and the ground-plan alone can show in this or any other scheme which may be presented.

Any scheme which does not attempt to embody the characteristics of the Church of to-day is not worthy of embodiment in fact, and a cathedral which fails to do this must be a monument to the incapacity of the architects of the nineteenth century, if nothing more.

So far as the design of the exterior is concerned the elevations and perspective view by which it is shown may be said to be in no way final. They are susceptible of wide modifications, always excepting the four towers which are constructively necessary.

All of which is respectfully submitted. GERONA.

To the foregoing notes which were submitted with their original

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design, the architects added the following particulars when the revised design was delivered: —

The communication of your Committee of Architects under date of July, 1889, requested us to revise and alter our design as further study might suggest, and in accordance with the instructions contained in that communication.

Extracts from the report of the experts were given which covered the following points:

1. Treatment of the main front.
2. The proportions of the towers.
3. Difference of scale between the treatment of the central space and other parts of the building.
4. Insufficient lighting of the central area.

1. The report states that "if the main front is not acceptable to all tastes and if the towers seem too large, especially in their lower stories for the place they occupy, these are details susceptible of easy modification."

We have modified the main front, not so much in the hope of making it acceptable to all tastes, which we would despair of accomplishing, but rather with a view to securing a treatment less Italian in character, and one in which the disposition of parts should better suggest the subdivisions of the structure which it terminates.

2. The objection to the size of the towers strikes us as well taken, and they have been reduced and the projection of the buttresses diminished.

The original perspective view is submitted that these changes may be seen, and an opinion as to their value reached.

3. The report further says that "there is a difference of style as well as of scale between the different parts of the design," which criticism we suppose to refer to the central area and those parts of the building opening into it. It would seem to us that there is here a reasonable ground for difference of opinion. We have not seen the original example, the Cathedral of Gerona. The authors of the report from which we quote may have seen it, and if this be the case between these gentlemen and Mr. George Edmund Street, there is a radical difference of opinion. We find nothing in Mr. Street's account of the building which would lead us to the conclusion that there was a want of scale between the nave and the choir of the Cathedral of Gerona of the nature which this criticism would imply. We find on the other hand, from Mr. Street's account of this building that the difference of the size of the parts is the most striking excellence of the work. We cannot but think that if the difference of scale exists in our design, it must also exist in the original scheme on which our design was based. That the geometrical section gives any idea of the effect cannot be affirmed, and we must leave this point to be determined by the interior perspective. We hold that in the simplicity of the central area contrasted with the multiplication of parts and details of the nave, transepts and choir lies one of the strongest features of the design of our interior.

4. The report further says "It is a matter of serious consideration whether the central space will be sufficiently lighted."

This point hinges naturally upon the question, What is meant by "sufficiently lighted?"

If to be sufficiently lighted it must be possible for the congregation to read the service without artificial light, we admit that it will not be sufficiently lighted. If, however, it is considered as sufficiently lighted if the whole architectural character of this part of the building be clearly defined and a fine contrast to the more brilliantly illuminated areas be obtained, we hold that it will be sufficiently lighted. There are few more difficult problems than the artistic lighting of such a building. A uniform light distributed equally through all the parts must be destructive of all effect. We hold that the brilliantly illuminated nave, transepts and choir seen through a more sombre area, such as this central space will be, must add immensity to the interest and effectiveness as well as to the apparent size of the building. With the present development of artificial lighting the temporary illumination for public service is a simple matter, and it were better to have recourse to such a method during the few hours of the day when the building may be in use for large congregations, than to attempt to introduce permanent light through windows, thereby destroying in large measure the beauty of the effect.

Reference to the plan will show that we have added one bay to the length of the nave. We have also largely modified the treatment of the choir. We have introduced a sanctuary, next to the great arch opening from the north arm of the cruciform space, covered by a single vault, and in this sanctuary we have placed the altar. This we hold to be a great improvement over the original plan, as it brings the altar sixty feet nearer the congregation, and places it in a feature of the plan especially constructed for its reception and at a point where its importance can be much increased. The choir, north of the altar, is filled with stalls, and flights of steps leading to each face of the altar admit of the use of the retro-choir for special services.

The interior perspective view will, we think, endorse the opinion which we have expressed as to the value of these changes in the arrangement of the choir, which are in line with those features which we have incorporated in the design, and which are based upon the central idea which has governed us in making this design, which idea is set forth in our description of the original drawings to which description we would again call the attention of the Trustees.

We have the honor to be respectfully yours,

W. A. POTTER,
R. H. ROBERTSON.

THE HUSS AND BUCK DESIGN.

MESSRS. HUSS & BUCK furnished the following statement: —

"So build thy Temple that man,
In silent meditation of its grandeur,
Shall feel his soul raised to the
Greater Glory of God." — *C. de R. H.*

THE drawings submitted by the undersigned are prepared in accordance with your instructions for "further elaboration," and are the general conception of a grand scheme for this cathedral.

The drawings consist of a ground-plan, east, north and south elevations, transverse and longitudinal sections, and two exterior and one interior perspectives, some of these drawings (those with the original device, A. M. D. G.) having been submitted in the first competition. In your revised instructions of September 12, 1889, it was voted "that each architect be allowed to submit his original plan and another set, according to his discretion." We therefore venture to suggest, by means of "flaps," a mode of considerably enlarging the central area, which will be described hereafter.

Attention is respectfully directed to the following brief explanation of the principal features of these drawings.

In designing a church which is to take the rank of the Cathedral of the City of New York, the traditions and examples of the "Mother Church" in England and Scotland will undoubtedly prove the best guide. (Not in a servile copy, but in a building developed and adapted to our present wants.)

There we have "inherited a priceless treasure of old religious buildings from our church in its unreformed condition, and as, happily, the English Reformation involved no breach of continuity, as it purified, but did not reconstruct, these churches in the main have served well for our present use; still there are those differences between the older and the newer Church of England which ought to make a church provided for this generation something different from the one which had been built for the Middle Ages."

Thus every age demands building plans of its own to suit, without loss or perplexity, its special requirements.

"It must be remembered that this cathedral is not a building for the Roman Catholic Ritual, but for the services of the 'Protestant Episcopal Church in the United States'; there are, therefore, many adjuncts of a mediæval cathedral which would be utterly out of place." It would be a grave error to imitate the heathen basilicas or the Roman traditions of a choir finished with an apse and its surrounding chapels, which are utterly inconsistent with the ritual of our church, and of which no example exists of its adoption in the ancient edifices of the "Mother Church."

"The original type of English chancel, with square east end, notwithstanding all the influence of Rome and the Continent, still maintains its ground as a triumphant proof of the deep hold taken by the original planting of Christianity in Britain, and of its vital and unbroken continuity. This peculiarity of English churches is so decisive, so marked, so characteristic, that it is no wonder that the English ecclesiologists have insisted on it as the proper rule, and have opposed the use of apses at all in the Anglican Church or any of its branches."

"For ecclesiastical buildings, there is no question but the general voice would declare in favor of the Gothic style. Tradition, association of ideas, prepossession, all tell in its favor. A new cathedral, setting at nought all these reminiscences, would appear to be an intruder, hardly calculated to take rank with its elder sisters, clothed in a different garb, and suggestive of different ideas."

In the Gothic work of the thirteenth century it would be difficult to find buildings more pure in detail, more graceful in design, or more suited to the present wants of the church.

The building of this cathedral will be perhaps the best opportunity that will be given in this, or the succeeding century, to develop the lessons learned from the past generations and to rival the skill which was shown in the Middle Ages by the architects of the cathedrals and great churches in the East.

Plan. — The usual plan of a cross church is followed (this differs from the original plan by the reduction of the transepts to three bays and in the shape of the chapter-house) crowned at the junction of nave and transepts with a large central tower and spire; this forms a combination of the two grand types of church arrangement — the "avenue" and the "central hall" — the common nave-and-aisle plan combined with a large central octagon (with an inside diameter of 74 feet) and giving accommodation to a large congregation within a small radius of the pulpit — an important point in a nineteenth-century cathedral. On separate "flaps" a mode is shown of enlarging (if desired) this central space to 115 feet diameter. The construction of this with our modern appliances and with our knowledge of steel and iron would not be difficult. In your instructions for "further elaboration," you call our attention to this "high lantern tower with small towers at the corners," which is one of the great features of the design. Of course this can be easily modified if on further study and consideration it were deemed wise to reduce the height of the central tower; and the opinion of Professors Babcock and Ware, architects,

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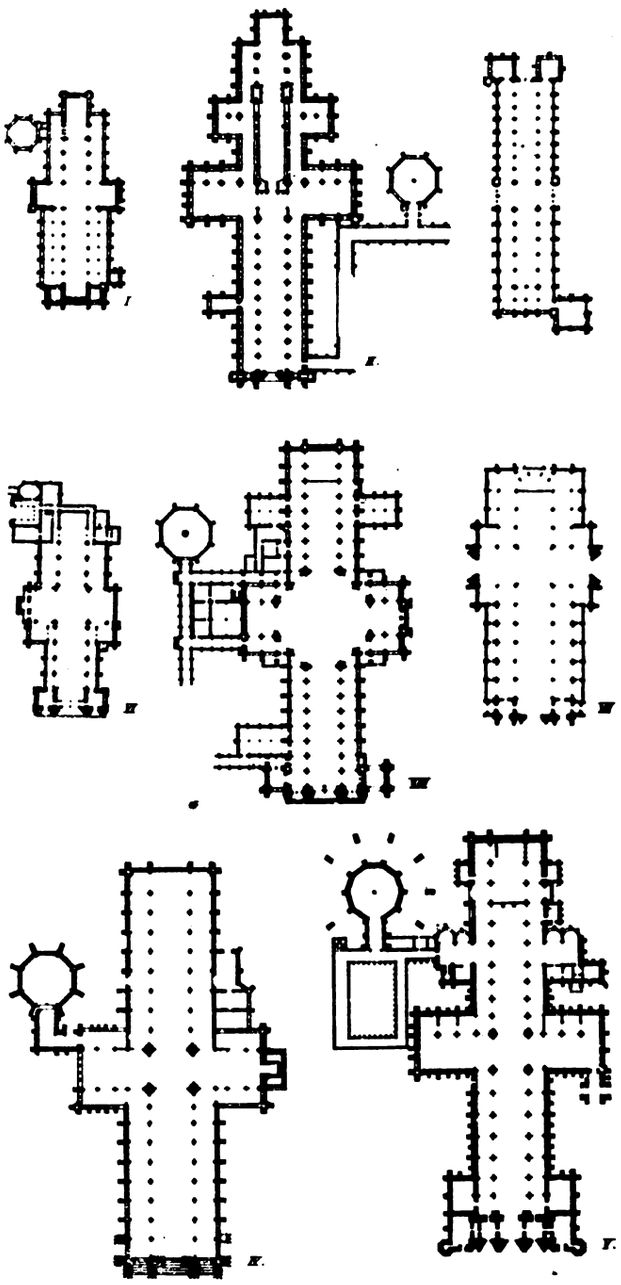
and Mr. John Bogart, civil engineer, voices our own judgment that in an important construction like this the utmost and special care should be taken, when the design is worked out, to secure the most complete, scientific and practical arrangement for ample areas of distribution of pressures and for taking the thrusts. It is not to be expected that in one-sixteenth-of-an-inch-scale drawings the entire constructive features and methods of development can be indicated, except in the most general way.

A cathedral, to dominate, should have a commanding mass with a great centre, and we have endeavored, while remembering the magnificence of the site, to avoid the contracted effect of two towers immediately flanking the nave, as at Westminster, York, Lichfield, etc. It is necessary to place the towers outside the ends of the aisles, as at Wells.



I. Elgin, Scotland
II. Salisbury, England
III. Glasgow, Scotland
IV. York, England
V. Lincoln, England.
VI. All Saints, Albany.
VII. S. Patrick's, New York.
VIII S. John The Divine. N.Y.

Block plans. — Herewith are plans of several cathedrals reduced for comparison to the same scale.

Nave. — The nave is wide (forty-four feet from the centre of piers) for the seating of worshippers; the aisles to be used as passages except in case of great crowds. The triforia are also designed to be used as galleries in such cases, and ample staircase approaches are planned.

The gallery across the south end of the nave is intended for the great organ.

The whole internal area, south of the choir, including transepts, aisles and triforia, but exclusive of choir, amounts to 40,000 feet and will give accommodation to over 5,500 persons; the seating to be by means of movable benches or chairs.

Choir. — The choir is a continuation of the nave, of sufficient length to accommodate the bishop, the clergy of the diocese and choir, and, if necessary, future extension into the retro-choir would add one or two bays. The choir could also be brought forward under the octagon as at the junction of choir and transepts at Westminster. The admission of the laity into the choir at the daily services is a question which the architect is not called upon to decide; but light, open benches or chairs could be arranged in the centre between the stalls, or the choir aisles be made available by open screen-work between the piers.

Light open screen-work and gates of metal are suggested between nave and choir, and at the entrances from the choir into the aisles; the gates north of the stalls on the east and west forming a convenient mode of return for communicants leaving the altar without impeding those approaching.

The altar is brought forward from the end wall, leaving a present space of two bays to form a retro-choir or chapel, The altar-screen and reredos to be of the richest marbles, statuary and mosaics. The sanctuary is of ample dimensions for proper service at the altar with sedilia on either side. The bishop's throne (cathedra) is at the north end of the stalls on the east side.

Chapels, etc. — Two chapels opening into the choir aisles are arranged to the east and west of the choir, with a small morning chapel for early communions near the southwest tower, which later it is proposed to utilize as a baptistery, while the tower to the southeast forms a porte cochère.

Vestries. — The clergy and choir vestries are west of the choir, communicating by the choir aisles, with the cloistered passage to the chapter-house, and, by the arrangement of the aisles and retro-choir with either of the chapels, as well as with the choir and sanctuary. Ample provision is made for lavatories, and for the sacristan and his assistants. The northwest chapel being in direct communication with the vestries could be used as a robing-room, etc., during conventions.

Organs. — It is proposed to place the choir organ in the two northern bays of the central tower over the choir aisles, and the great organ as previously mentioned in the south gallery over the main entrance.

Chapter-house, etc. — The chapter-house is placed in close proximity to the offices of the Chancellor, Registrar, etc., the muniment-room (with library over) and, through the cloisters, to the vestries and choir.

Entrances. — The principal entrances are at the south end and the east transept. These entrances modelled after the more imposing Continental forms are deeply recessed for protection from the weather. Staircases and passages in the walls give access to all parts of the building at different levels.

Crypt, etc. — If required, a crypt could be arranged under a portion of the nave, but small chambers and tunnels would be necessary to contain the air-flues and water-pipes also electric wires from the separate engine-house and organs so that repairs, etc., might be made without disturbing any portion of the flooring.

Construction. — It is proposed to face the walls inside and out with wrought-stone; granite for the outside, with dressings of Wyoming Valley or Warsaw bluestone: inside, of Indiana buff limestone with marble shafts, slabs, etc. The exterior work to be bold and massive, suited to the climate, leaving the principal decoration for the interior.

The roofs to be vaulted with ribs of Warsaw bluestone, either filled-in with Hoosier buff limestone, with hollow brick or fireproof material, in turn to be covered with rich mosaics. The vault over aisles to be filled-in and covered with Roman mosaic to form floor of triforia; the roof above to be vaulted, decorated and covered with an arch turned (between the buttresses) in hollow firebrick or cement-concrete to carry the lead or copper roof.

The roofs above vaulting of nave, choir, chapter-house etc., to be of iron trusses filled-in with fireproof blocks and covered with either lead or copper. All floors to be of stone, marble or Roman mosaic and the crypt, if any, to be vaulted.

The towers, and especially the upper portion of the central tower, to be constructed of heavy lattice girders, trusses and ribs resting upon wrought, built iron or steel columns carried down to the foundations and surrounded by the stonework: an independent skeleton of structural ironwork subordinate to, and covered with masonry. We need hardly remind you of some of the recent secular buildings, of great height, quickly and safely constructed on this well-approved method.

The arrangements for heating and ventilating would be by means of fresh hot and foul air channels, the air of which would be worked by fans in a separate building or engine-house, where would be placed the dynamos for lighting and supplying motive power for blowing the organs, etc.

Symbolism. — It is unnecessary to explain the symbolism of the peculiarities of the plan, or arrangement and disposition of the parts of the structure, but attention is called to the double Cross worked out in the plan which is generally conceded to be the "mark of a metropolitan church." This is to be found at Canterbury and York.

In Conclusion. — The endeavor has been not to experiment in any new direction of architecture, but rather to adapt the best periods to

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a plan suitable for modern requirements and the services of the Church and for the site.

"It is, ecclesiologically, a momentous crisis in the history of the American Church. Irrevocable mischief or inspiration for all the future are bound up in it. There is good ground for anxiety lest the opportunity be let slip, and the most tenderly cherished predilections of Church people be sacrificed to radical, if not revolutionary, developments in structural art."

It is hoped that this design may meet with your approval and secure your further instructions.

Respectfully submitted,

GEORGE MARTIN HUSS, } *Associated Architects.*
JOHN HENRY BUCK, }

"Stone upon stone!
Each in its place,
For strength and for grace,
Rises stone upon stone!

Like a cluster of rods,
Bound with leaf-garlands tender,
The great massive pillars
Rise stately and slender;
Rise and bend and embrace
Until each owns a brother,
As down the long aisles
They stand linked to each other;
While a rod of each cluster
Rises higher and higher
Breaking up in the shadow,
Like clouds that aspire.
While here in the midst,
'Neath the great central tower,
The strength and the unity
Mingle in power,
And the mystery greatens;
Nowhere in the place
Can the eye see the whole,
Or the sun light the space.
And here the gloom gathers,
And deepens to dense,
While yonder the white light
Breaks sharp and intense.

Unity! Mystery!
Majesty! Grace!
Stone upon stone,
And each stone in its place."

THE HEINS AND LAFARGE DESIGN.

THE design submitted by Messrs. Heins & LaFarge was accompanied with the following statement, which deals with the material, rather than the theoretical conditions of the problem: —

A PROBLEM of such magnitude as the proposed Cathedral of St. John the Divine is not lightly to be undertaken, if even a measure of success is to be expected; and the present design is by no means regarded by its authors as an ultimatum. Its essential features are as follows, almost everything else being a matter of detail, subject to reconsideration and further study:

1. A cross plan, with semicircular terminations to the choir and transept arms. A large space at the crossing as wide as the nave and aisles together. Wide nave, narrow aisles. A central lantern over the crossing, thoroughly lighting the interior and dominating, with its spire, the exterior.

2. The transepts arranged to contain memorial monuments.

3. All the necessary constructive features, such as buttresses, protected from the weather, by being brought under roof.

4. The walls built with air-spaces. The inside lining-wall of hollow brick to be finished with painting, fresco, mosaic or slabs of stone or marble. The exterior wall of cut-stone.

5. The vaults constructed with tiles, and made to carry the roof proper, leaving the necessary air-space.

6. The interior following the architectural traditions of the Early Church. The exterior following the architectural traditions of the Church of England.

7. The chief decoration by means of works of art of the highest attainable character.

1. The original instructions to the architects limited the total length to 400 feet. This dimension has in the present design been taken from the outside of the façade to the outside of the ambulatory.

In the plan of the chancel, the architects have felt that the simplest traditional arrangements were the most proper to follow. These include its subdivision by broad steps and structural design into choir and sanctuary.

The chancel vault is lofty, in order to give it predominance and dignity. The nave and transept arches are lower, the transepts being vaulted at this level, while the nave arches carry vaults which rise above them.

This subordinates these features in the ratio of their importance, while the central lantern rising above the crossing admits a flood of tempered light into every part.

The choir has the necessary stalls for the clergy and choristers and the bishop's chair which particularly distinguishes the Cathedral Church. The stalls and the organs have, to avoid confusion, not been shown on the elevations, although they are provided for on plan and in the general design. The altar is at the centre of the sanctuary wall with a broad space between it and the communion rail.

The open galleries above the choir aisles are arranged to receive the organs; being open to the choir, they would allow the sound to escape freely. The pulpit and lectern are placed in the crossing immediately next the congregation.

The chapter-house is in the centre of a group of memorial chapels and vestries which extend around the chancel. The baptistery is at the west and the morning chapel at the east of the nave; each has a separate entrance from without, but can also be entered either from the main vestibule or the church itself. Separate chapels for service in other languages were included in the original scheme, but have been omitted in the present plan.

The most typical Christian plan must necessarily take the form of the cross. To devote the greatest possible space to the sittings, the width of the nave and aisles together is taken for the crossing, the nave being wide and the aisles narrow. The congregation is thus massed about the chancel and pulpit immediately under the central lantern and in the wide nave and transepts.

The nave is vaulted by a tunnel vault over the entrance bay, followed by two bays which would have either the true domes as shown, or vaults of continuous surface, rising from the transverse and longitudinal arches.

By the setting back of the clerestory walls, as explained later, and the lifting of the nave vaults, so that neither vaults nor walls catch the light from the south façade, and by the depth of coloring in the clerestory windows, the nave would contrast effectively against the brilliant illumination of the crossing and chancel beyond.

With this in view, the nave has been made longer than would be strictly necessary for an auditorium, but this increased length seems an advantage in that it not only provides space for unusually large congregations, but avoids the unsatisfactory effect of entering directly under a great dome. On the exterior, it also has the advantage of preventing the central feature from overpowering the rest of the church.

The question of lighting the interior brings up that of stained-glass, which is properly to be divided into two kinds. Those windows intended primarily to give light, such as the windows in the central lantern and in the façade, should have the stained-glass of delicate tones, with only subordinate figure-work, while the great windows of the nave should be given up to the utmost splendor of subject and depth and richness of color.

For stained-glass of this kind, large openings, unbroken by mullions, offer the most favorable opportunity. The windows are all placed high up in the walls. This lends to the exterior an effect of solidity through the unbroken wall-surface below, as contrasted with the enrichment of the openings above, while it gives the interior an air of seclusion and repose.

The seven windows in the sanctuary wall are arranged to receive a borrowed light through the triforium gallery, which, in turn, is lit by windows in the exterior wall. This is the most favorable arrangement for effects of splendor of color.

2. Memorials, in the form of inscriptions and tablets, need large, simple wall-surfaces for their proper arrangement, while isolated monuments or statues require ample floor-space within the edifice, not too remote, yet distinct from the space devoted to religious services. Such monumental spaces are provided by the memorial chapels, and especially by the semicircular transepts.

This design is distinguished from the usual type of cruciform church in that the transepts have this definite function, and are not used as thoroughfares, access from the east and west being given by entrances in the flanking towers.

On the exterior the transepts are kept low, corresponding to their relative importance in the interior, so that they do not interrupt the roof-line of the nave and chancel.

3. In the cross-section through a nave of the usual Gothic type, the nave-vaults are higher than those of the side-aisles, to allow for windows in the clerestory wall. The buttresses, springing from the outside wall of the aisle, and resting against the upper clerestory wall, are outside the building. If, now, the clerestory wall be moved outward, to come above the aisle wall, and the roof be extended to cover it, the buttresses will be inside the building. This arrangement has the advantage of bringing all the necessary constructional features under roof, and thus protecting them from the weather; it has been done in some edifices of the Eastern Church, and it seems remarkable that so rational and simple an arrangement should not have been more frequently used in the West. It protects the vital parts of the construction from the weather, it frees the exterior from flying-buttresses, and it gives an air of great spaciousness inside, since the whole width of nave and aisles together is obtained above, as well as at the level of the floor.

The projection of the piers on the inside is also of value for proper acoustics; truthfulness of constructive expression would be obtained by constructing them in solid masonry, showing the actual courses, and reserving the surface treatment of mosaic, slabs of marble or painting for the walls and vaults, where an air-space is necessary.

4. The walls of buildings in this climate may be said to consist of two parts: an outer solid wall for the purpose of support and as protection against the elements, and an inner skin of some kind separated from the main wall by an air-space. This air-space is essential to preserve and protect the interior from dampness and cold.

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The usual method in inexpensive work is to place wooden studs against the inside of the wall, and to lath and plaster on these, but the best method is to build a thin lining-wall inside the main wall.

This lining-wall can be built of cut-stone, but the artistic result hardly warrants the expense. By far the best method is to build the wall of hollow brick, which can be either painted or frescoed, or covered with mosaic or with slabs of stone or marble.

This, it will be seen, is a question to be determined without reference to the style of architecture, but with an eye solely to the necessary conditions of the problem and to the decorative result desired. It is as obviously correct and proper so to build as it is to line a coat with a material softer and finer than that used for the outside; and, in fact, there is an architectural propriety in having the interior of a building differentiated from the exterior. The exterior is exposed to all the elements, while the interior is not so exposed.

In Saint Mark's, at Venice, both are treated in exactly the same way, but exterior mosaics and fine marble, while suitable for a mild climate, would be out of place here. In Gothic work, the cut-stone treatment, developed as a necessity of exterior architecture in Northern countries, is employed in the same manner in the interior. It seems quite as unreasonable to use cut-stone within as it is to use mosaics upon the outside. The church at Cefalu, in Sicily, however, has an interior in mosaic and marble slabs, and an exterior in cut-stone, with a tendency toward early Gothic details. Here, then, is an example, produced by the intermingling of Northern and Southern architectural traditions, in which a peculiarly rational result is attained.

The exterior of any building should, of course, correspond in its architectural divisions to the interior construction. There seems, however, no valid reason why that construction need actually project beyond the walls; on the contrary, the best arrangement for this climate would seem to be that in which the interior shows not only the vaults, but also the counter-thrust of the buttressing, so as to produce an effect of complete stability within; while the exterior is confined to its real architectural function, that of a protection against the elements.

5. The Romans employed two methods of vault-construction: one, of ribs buried in the concrete mass of the vault, which has been developed into the Gothic system of independent vaulting-ribs; the other, of flat-tile arches, which has never been fully developed, although in small and unimportant use in some parts of the world ever since. It has lately been introduced into this country by workmen familiar with its use, and has proved to be the most economical method of permanent vaulting.

Vaults constructed according to this system consist of tiles laid at right angles to the radius of the arch and overlapping each other in several layers.

In the Middle Ages the loftiest cathedral vault was constructed in the same manner as the vaults in secular buildings. It was only an architectural development of the usual methods. This was obviously the only reasonable course to pursue, and we propose that the new cathedral should follow in the same spirit, employing the best and most suitable form of construction available at the present day. If the Gothic architects had not thought for themselves, but had tamely followed the practice of their predecessors, there would have been no progress. It could never have occurred to them to use a heavy and expensive mode of construction, if they had a lighter and more effective one available; in fact, their constant effort was to lighten and improve their construction.

That the tile-arch construction was not in more general use in Gothic times is presumably due, largely, to the lack of the necessary cement of a uniform quality. Its advantages over the Gothic system are its greater strength, lightness, economy, and ease of execution, and the fact that it exerts very little outward thrust against the supports, and that it is equally strong at every point. Since its chief advantages lie in its use in surfaces of continuous curvature, it follows that domes, barrel-vaults or what is known as "continuous pendentive" vaults are suitable forms; while pointed barrel-vaults or Gothic vaults with projecting ribs, being discontinuous curved surfaces, are less well adapted to this material.

To vault the eighty-seven foot span of the crossing of the present design in this manner would require less massive buttressing than to vault it with cut-stone ribs and vaulting compartments in the Gothic manner, and hence would be much less expensive in that regard, as well as in the cost of the vault itself, in which alone the saving would be great.

Except the lately removed vault of the Assembly Chamber at Albany no Gothic vault of first-class dimensions has, we believe, as yet been constructed in this country.

The Gothic vault is in reality only a decorative ceiling, which, except the ribs, could be removed without organically affecting the construction. The real roof is carried by the trusses which span the space from wall to wall quite independently of the vault below.

The construction proposed for the present design would give vaults stiff and strong enough in every part to carry at convenient intervals, walls of hollow brick supporting the roof-surface proper and leaving the air-spaces which are even more necessary in a roof than in the walls. Thus the vaults would actually carry the roof, and this seems to be their proper architectural function.

In a severe climate, with violent changes in temperature, a stone roof, in which all the joints shall be covered by overlapping the slabs of which it is composed, would be the most monumental and durable and the one most likely to ensure freedom from repairs. Tiles, however, laid in cement, would answer very well. With modern mechanical appliances, sufficiently large slabs of suitable stone can be obtained without undue expense.

In the vaulted structures of the Early Church, the dome was frequently employed as the actual roof, visible both inside and out. Except in a very dry climate, a double shell to such a dome is necessary to give an air-space. The Cathedral at Florence and St. Peter's at Rome are so constructed. The exterior shell, if of masonry, is exposed toward the top to infiltration of rain which with frost would, in this climate, quickly cause irreparable damage. It is therefore necessary to cover the exterior dome with metal which was done in the two buildings just mentioned, but this suggests the suppression of the exterior masonry shell and the substitution of an iron or wooden framework carrying the metal covering; in which case the dome on the outside would merely be a satisfaction of personal preferences rather than a form resulting from constructional necessities.

In St. Paul's in London, there is an inner masonry dome, over the crossing. Outside of this is a conical construction built of brick in horizontal courses, like a spire; this carries the small lantern and cross. The domical shape on the exterior is given by a wooden framework covered with metal. If now this outer woodwork be removed, the remaining features would be a dome surmounted by a spire like the famous ciboria of the old cathedral at Salamanca which consists of these two features employed in a logical manner. In the Romanesque churches in central France, also, the domes are generally covered by conical or pyramidical roofs.

It is as reasonable to put a cone.

A spire, by the steep inclination of its faces sheds rain, thereby insuring the permanence which is impossible in an unprotected masonry dome. It is, in fact, a monumental roof, and a cone or polygonal pyramid is as properly to be used to protect a dome within as a square pyramid to cover a groined arch, or a common roof to cover a barrel-vault or a gable over an arch.

The use of iron or steel in construction is not desirable as their life is limited unless they are constantly repainted, and it is a question whether, even if completely built-in, they will not oxidize. M. Viollet-le-Duc,[1] in his restoration of the cathedral of Paris, found that clamps in the interior of the masonry and thoroughly protected, had oxidized, and by the consequent expansion, brought ultimate disaster to the construction they were intended to secure.

6. The Protestant Episcopal Church in America traces her descent from the early Apostolic Church, through the Church of England; the design here presented recalls this history.

The Byzantine domed churches first gave to the world a perfected type of Christian art. The Roman basilica was, of course, employed from the earliest times, but it was not originally a typical expression of Christian architecture, since the idea was borrowed directly from the Roman halls of justice. The influence of the basilica type became paramount, and the Gothic nave was a development and perfecting of the unremitting attempts to vault a basilica; but Sta. Sophia, at Constantinople, must be regarded as the first great expression of a typically Christian mode of religious architecture.[2]

An almost universal feature of the early domed churches was the central lantern, which is a striking point of similarity with the English Cathedrals. It gives the dignified and harmonious composition of a great pyramidal group with the most important feature over the crossing. It is sufficient to recall the outlines of the English cathedrals to see that this was their usual arrangement; while the majority of the French cathedrals were never intended to have other than the towers of the façades. In some of the Continental cathedrals, the central tower or lantern was used, but except in the Rhenish churches, it was nowhere so characteristic as in England.

The round arch has been used throughout the present design since not only would pointed arches have been out of harmony with the desired character of the interior, but no constructive necessity required their use.

It has much admirable precedent. Pointed arches were not used extensively until they were introduced into the vaults as a means of overcoming constructive difficulties. Finally they were employed throughout, from a just sense of harmony, but they are by no means an indispensable feature; the Cathedral of Durham with the round arches of its nave is as much a splendid type of Christian church as is Westminster Abbey with its pointed arcades.

There is in the exterior of the present design a gradually increasing verticality of composition proceeding from the chancel toward the façade and culminating in the latter in a strongly marked predominance of vertical lines, thus giving a Norman Romanesque character to the chancel growing into Gothic in the façade. The object of this is to secure some of the interest and variety which is so characteristic of Transitional architecture.

In the usual Gothic interior the perspective convergence of the lines of the walls and vaults apparently contracts the choir and lessens its

[1] Viollet-le-Duc: "*Dictionnaire.*" Article "*Chainage.*" p. 400.

[2] In the article "*Construction,*" p. 113, of the "*Dictionnaire de l'architecture,*" by Viollet-le-Duc, one may find a clear statement and diagrams of the distinction in the construction of the French and Gothic vaults which illustrates the structural kinship between the rib-vaulting and the fan-vaulting of the English cathedrals and the domical system of the earliest Christian churches. This explains most of the differences between French and English Gothic. The English work, except in the latest periods, retained as well much more feeling for simplicity of wall-surface, in dim recollection, perhaps, of this distant ancestry.

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importance as compared with the nave, and the higher and wider the vaults, the more do they apparently diminish as they recede. In the present design, however, there is a gradual enlargement of the interior, from the entrance toward the chancel, which is emphatically accentuated by a sudden increase in height. A somewhat similar treatment has given to the Cathedral of Monreale, in Sicily, one of the most effective and most famous interiors in the world.

7. In considering the kind of decoration practically available at the present time, one cannot fail to be struck by the great preponderance of painters and sculptors, and the almost utter absence of any consistent school of purely decorative ornamentation.

What decorative ornament is attempted is for the most part merely clever copying of old work; but the painters and sculptors are working along untrodden paths; one cannot but feel that the work they are doing satisfies more fully our æsthetic desires than would any amount of decorative patterns or carvings of string-courses and crockets. In the Middle Ages, in northern countries, there were guilds of artist-artisans who carved the delightfully varied and charming capitals, corbels, running-foliage and the like which enliven the architecture, but except in the Byzantine schools there was probably not a man in Christendom who had the training and artistic experience necessary to paint a picture containing figures ten feet high. The Byzantine schools had fallen during the Middle Ages into a dreary monotony and it is the productions of this time, rather than those of the earlier and purer periods. that are now generally brought to mind by the name of Byzantium.

In any attempt to use the structures of the Early Church as models, great care is, of course, necessary to avoid such Oriental characteristics as would seem strange and foreign. There is, however, so much common sense in these early churches and they offer such a straightforward solution of the architectural problem that they appear to apply with peculiar force to the present case. The rugs and hangings of the East are a part of the furniture of houses to-day, and in the Middle Ages the Byzantine ivories, carvings and miniatures were likewise highly prized and gave many suggestions for carving and decoration.

Although a school of decorative carving might perhaps be created and carried on especially for the Cathedral work, and a popular interest aroused which would have a powerful effect in producing the best work of this kind possible at the present day, yet it cannot but be admitted that the decoration which appeals most powerfully to the imagination is that afforded by great paintings or bas-reliefs together with stained-glass windows of religious subjects. This is not only the highest form of decoration, but it seems in fact the most available under modern conditions. It is, however, by no means necessary to the design as presented that the interior should be throughout elaborately decorated by figure subjects on a large scale, this might in execution not be attained for centuries, if ever; dignified proportions and logical arrangements would of themselves give an effective result if only painted in low tones in a simple, agreeable manner.

These are the practical and architectural considerations and the historical precedents which have controlled the design here presented and the resulting forms are such as are at many points susceptible of symbolic interpretation.

The subjects to be employed in the decorative treatment are a matter for mature deliberation. The following scheme is only one of a number which might be suggested.

The nave as a whole is taken for the representation of the Old Covenant and is devoted to the scenes and types from the Old Testament.

The three bays of nave are devoted to the Three Persons of the Holy Trinity; the five subordinate bays of aisles to the Pentateuch. The four piers, supporting the nave vaults have carved capitals or figures on the vaults, representing the four Greater Prophets and the twelve columns the twelve Lesser Prophets, while the two columns next the main vestibule represent Adam and Eve. The stained-glass windows of the nave have figures of the prophets with symbolic events represented in the semicircles above.

In the crossing is represented the Revelation, and this seems particularly appropriate in the Cathedral of St. John the Divine, giving the proper importance to the Vision, yet not conflicting with the dignity of the chancel.

The twelve piers supporting the great lantern are devoted to the Twelve Apostles, and the piers and columns of the transepts, by the carving of their capitals, to the noble army of Saints and Martyrs. Above the arches of the transepts and nave, facing the chancel, are the four-and-twenty Elders casting their crowns before the Throne; in the four pendentives of the great dome, the four Beasts of the Revelation under the guise of the Symbols of the four Evangelists, while the great dome itself has order on order of the Hosts of Heaven in adoration and praise about the Throne.

The chancel is devoted to the expression of the fulfilment of prophecy in Our Blessed Lord and Saviour. It should be the most impressive part of the sacred edifice and should be marked by its distinct architectural treatment; its proper adornment demands the highest efforts of Art, expressed in the most precious marbles, the most exquisite carvings and paintings, and the finest mosaics and stained-glass. It is needless to enumerate what scenes of the Life and Passion of Our Lord might animate the walls, the embarrassment being but to choose from the riches offered; whatever may be desired of artistic and symbolic beauty should certainly be lavished here. The twelve columns forming the ambulatory, the seven arches supporting the vault of the sanctuary with the seven windows above, the two larger and two smaller piers, should all tell their story and add to the voices which speak from the walls. It is here, in a word, where should be represented and expressed the most solemn teachings of the religious belief, which the cathedral as a whole, represents.

The proportions, subdivisions, and carvings of the exterior have throughout been considered with reference to the decorative scheme of the interior. The south façade is in the form of an equilateral triangle, the extreme width of the front, forms the base and the top of the main gable, the peak. The façade also forms a square, the width being as before and the height, that to the base of the spires. In the four towers, as buttresses of the central lantern, are symbolized the four Evangelists, while the two towers of the façade are devoted to Saint John the Baptist and Saint Michael Archangel as heralds and messengers of Our Lord.

The central lantern is naturally devoted to the expression and representation of the Revelations and by its decoration is intended to recall the Vision of Saint John the Divine.

The seven stages of its height are adorned with statues of carvings of the seven Angels, the four turrets at the angles have carvings to represent the four Beasts corresponding to the pendentives inside, and the twelve gables about the twelve-sided spire have pinnacles carved with statues of the four-and-twenty Elders about the Throne. The twelve sides of the spire have, carved, the symbolic eagles at the upper part, while the seated statues at the peaks of the great gables represent great teachers of mistaken religions, Buddha, Mohammed and Confucius being thus subordinated to the more perfect Christian Faith.

HEINS & LAFARGE.

THE ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

DESIGN FOR THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK, N. Y. MR. W. HALSEY WOOD, ARCHITECT, NEWARK, N. J.

PLAN OF THE SAME.

DESIGN FOR THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK, N. Y. MESSRS. W. A. POTTER AND R. H. ROBERTSON, ASSOCIATED ARCHITECTS, NEW YORK, N. Y.

PLAN OF THE SAME.

DESIGN FOR THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK, N. Y. MESSRS. G. M. HUSS AND J. H. BUCK, ASSOCIATED ARCHITECTS, NEW YORK, N. Y.

PLAN OF THE SAME.

THE "flap" showing proposed enlargement of the crossing is shown at the top of the plate.

DESIGN FOR THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK, N. Y. MESSRS. HEINS & LAFARGE, ARCHITECTS, NEW YORK, N. Y.

PLAN OF THE SAME.

[Additional Illustrations in the International Edition.]

SOUTHEAST PERSPECTIVE VIEW OF THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK, N. Y. MR. W. HALSEY WOOD, ARCHITECT, NEWARK, N. J.

WE particularly regret that we cannot exhibit a better reproduction of this drawing, for the original is very, very near to being one of the most remarkable and interesting pen-and-ink drawings ever made. We understand that it is the last drawing made by Mr. Davidson, who was ill even while at work upon it, and one of the Trustees who is an enthusiastic admirer of the design has declared his belief that the drawing is actually "inspired work," done under the direct guidance of heavenly hosts.

INTERIOR VIEW OF NAVE AND CHANCEL OF SAME DESIGN.

PLAN AND PERSPECTIVE SUBMITTED IN THE FIRST COMPETITION. W. HALSEY WOOD, ARCHITECT.

SECTION OF THE SAME.

NORTHWEST PERSPECTIVE VIEW OF THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK, N. Y. MESSRS. W. A. POTTER AND R. H. ROBERTSON, ARCHITECTS, NEW YORK, N. Y.

INTERIOR VIEW OF CROSSING AND CHANCEL OF THE SAME DESIGN.

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PLAN, SECTION AND PERSPECTIVE SUBMITTED IN THE FIRST COMPETITION. MESSRS. W. A. POTTER AND R. H. ROBERTSON, ARCHITECTS.

EAST ELEVATION OF THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK, N. Y. MESSRS. HEINS & LAFARGE, ARCHITECTS, NEW YORK, N. Y.

FRONT ELEVATION OF THE SAME.

INTERIOR VIEW OF NAVE AND CROSSING OF THE SAME.

LONGITUDINAL SECTION OF THE SAME.

REAR PERSPECTIVE VIEW OF THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK, N. Y. MESSRS. HUSS AND BUCK, ASSOCIATED ARCHITECTS.

LONGITUDINAL SECTION OF THE SAME.

The "flaps" showing the treatment of the enlarged crossing is also shown upon this plate.

[It was our intention to give each design a fairly equivalent illustration, but the character of the drawings, the light and a mistake in instructions made it impossible to procure as many plates of Messrs. Huss & Buck's design as of the others. — Eds.]

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

"SAFE BUILDING."

April 25, 1891.

To the Editors of the American Architect: —

Dear Sirs, — How soon can the second volume of "*Safe Building*" be looked for? Will you also kindly tell whether there will be a continuation of the papers or will they end with the second volume which, I understand, is now in press?

Yours respectfully, Q.

[The articles on Safe Building are, so far as this journal is concerned, completed. The second volume is in press and only awaits the index, which Mr. Berg has not yet finished. Eds. American Architect.]

STORAGE-BATTERIES FOR ELECTRIC-LIGHTING.

Rochester, N. Y., April 10, 1891.

To the Editors of the American Architect: —

Dear Sirs, — Will you kindly inform me whether the use of the storage battery for lighting by electricity in dwelling-houses is now practicable, and oblige,

Yours very truly, James G. Cutler.

[Entirely practicable and in regular use in many places. If, as we half imagine, our correspondent hopes to use a storage-battery alone, sending it to be recharged when necessary, we will add that while even this *can* be done, yet the freight charges on a fifty-lamp battery — which weighs about a ton — would make this course an unduly costly one. A storage-battery used in conjunction with a small dynamo, run by steam, gas or water, is very useful both as a regulator of and auxiliary to the sometimes uneven action of a small, isolated plant. — Eds. American Architect.]

NOTES AND CLIPPINGS

The Cathedral at Morelia, Mexico. — Morelia is best known as having the champion military band of the country; but this is an uncertain and transitory distinction when musical rivalries are intense and every town plaza resounds nightly with national music played with fire and spirit. It has also one of the few really beautiful cathedrals. The foundation dates back to 1538 in Tzintzuntzan, but there were successive removals during the next forty years to Pascuaro and Valladolid — now Morelia. The first cathedral was a tiny structure, now known as La Cruz, and in a half-ruined state. The present structure was begun in 1640 and completed in 1744. While the altars have been refurnished and the whole interior has been regilded and freshened, the loss entailed by the confiscation of nearly $500,000 worth of silver and other ornaments by the Government has not been made good, and richness is lacking. The sacristy, however, is very beautiful, and there is much fine carving in the choir. The towers are finely proportioned and the effect of the exterior is symmetrical and imposing. There are several other handsome churches in the town, but this ranks among the most pretentious in Mexico. In general terms it is safe to affirm that in excellence of architectural design and in richness of interior decoration there are a dozen churches in Mexico surpassing any cathedral in South America that can be named. There may or may not be more piety here, but certainly there is better art. Another distinguishing characteristic of Morelia is its charming pleasure-grounds. In addition to the plazas on each side of the cathedral there is an alameda on the eastern end of the town where a long stone causeway, with broad parapets and benches, is shaded with trees. This causeway is spanned by an aqueduct, and it is a delightful place for outdoor music. Since I have ventured to compare the ecclesiastical architecture of Mexico with that of South America, I may go farther and add that with the exception of Rio in Brazil and Santiago in Chili there are no cities in the far south possessing such artistic plazas and alamedas as are seen in this Aztec land; and certainly there is no music heard there equal to that of the military bands here. In the original Aztec blood there must have been a strain of passion for decorative effects and music. Spanish regularity and landscape gardening have left their impress upon Mexican cities, but the superior taste shown in the arrangement and maintenance of the plazas and alamedas is the heritage of ancient native civilization. — *I. N. F., in the New York Tribune.*

Gas Damage to Trees. — "If, through a leak in the gas-main, a tree should be killed, is the company legally liable for the loss? And if not, is it generally the custom to pay damages for the same?" The answer to this question by a member of the New England gas-managers was that the company was certainly liable; "but we never make it a question of the law. As soon as we have a report of injury by reason of a gas leak, we tell the party we are very sorry, and give a nurseryman an order to replace the tree." — *Scientific American.*

Painting Wood. — It is found that in painting wood one coat takes 20 lbs. of lead and 4 gallons of oil per 100 square yards: the second coat 40 lbs. of lead and 4 gallons of oil; and the third the same as the second: say, 100 lbs. of lead and 16 gallons of oil per 100 square yards for the three coats. The number of square yards covered by one gallon of priming color is found to be 50; of white zinc, 50; of white lead paint 44; of lead color, 50; of black paint, 50; of stone color, 44; of yellow paint, 44; of blue color, 45; of green paint, 45. — *Invention.*

TRADE SURVEYS

The disposition of the labor question for the year is already leading to the inauguration of quite a number of enterprises which were held back until that emergency passed. The very latest expressions and opinions from leading architects, engineering constructors and builders are to the effect that building labor will be fully employed for the next two or three months. Contracts for large quantities of brick, lumber, cement, plaster, lath, shingles, etc., have been placed within a few days in New York, Philadelphia, Chicago and some other large cities. These contracts were merely closed, the negotiations having previously gone to the point of being closed. It is stated also by locomotive-builders and the managers of a few large engineering establishments that, within a few days past, contracts have been closed for machinery and engines. It is stated on the authority of one or two large locomotive-builders that the probabilities are very strong that railroad companies will depart from their very economic policy in regard to supplying motive power and equipments, and that they will equip their roads more fully, and up to the standard which engineers have been advising all along. The railroad managers have been going against the advices of their engineers in respect to equipments, and have allowed their roads to run down, so to speak; but, if the statements made in some quarters are to be relied upon, there will be a great deal of locomotive-building done, as well as a great deal of equipment material ordered during the next two or three months. The railway engineering managers are very anxious to put the railroads of the country into first-class condition, and they have been urging this policy upon their companies for a long time past. The managers have admitted the wisdom of the course advised, but their attention has been taken up with less important matters; but it is now probable that more systematic management will be given to the better equipment of railways in the matter of engines, cars, shops and the equipment of shops. This will have a favorable effect upon those industries which supply railway companies. There is also, it is stated on good authority, a very heavy demand for machinery for general shop equipment purposes; also, the machinery for those establishments engaged in the manufacture of farming implements, etc. Tools and small engines are also in very active demand. The manufacturers of railway equipments are busier than they ever have been, if that be possible, and decided improvements are being introduced in the matter of storage-batteries and methods of propulsion for street-cars. The electrical engineers are making remarkable headway in the solution of practical questions within their field. The coal trade is also very active, considering the industrial depression. For instance, the anthracite output so far this year is reported at 1,750,000 tons more than last year. The bituminous mines in the mountain regions of Pennsylvania and Virginia have yielded 700,000 tons more than last year. The mining regions of the Western States have also yielded a larger output than up to this date last year. Throughout the South, more coal is being mined and much more coke made. The Connelsville agitation continues, and the miners are being more liberally provided with means to continue their resistance. The lumber trade has improved remarkably within the week, and, as building operations will now be prosecuted with vigor, retailers and wholesalers in nearly all of the larger cities are making large purchases to cover work to be done for the next three or four months. Yellow pine is crowding its way into Northern markets, especially in the Northwest, where white pine is supposed to be king. The Southern hard-wood interests are being rapidly developed, and that, too, by Northern capital. Building material is low in price, including iron and steel. The production of iron has not been increased, but, from indications thrown out, an improving demand is supposed to be near at hand. The most active demand is for material for bridge-construction, of which a large amount is underway. More interest is being exhibited in the improvement of country roads, and the attention of several State legislatures is being now given to this subject. The money markets continue in an unsatisfactory condition, despite the very favorable reports from money centres. It is not true, as stated in many journals, that at least to the rank and file of borrowers, money is easy. Collections are still difficult, especially in the Western States. It is true that commercial failures are not increasing, but the stringent conditions and the causes leading thereto continue. There is nothing of a very serious nature to be apprehended; manufacturers and distributors are guaging their efforts and operations with the utmost care and foresight. The accumulation of goods is being carefully guarded against. Notwithstanding the dulness, there appears to be but very little unemployed labor. The decrease of business so far this year, as compared to last, is generally put at from seven to eight per cent. Prices are not declining, for the good reason that there is now only a very narrow margin between cost of production and ruling market rates.

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THE opening of the building season is, as usual, marked by desperate struggles on the part of the artful managers who live on other people's distress to throw business into confusion. So far, these struggles have not met with much result. The costly uncertainties with which the walking-delegates have succeeded in surrounding the business of building have driven capital into other investments, and the prospect appears to be that building labor will be insufficiently employed for the next year or two. This does not prevent the people who hold the power to create disturbances from using it, and the close dependence of the different branches of building work upon each other makes it easy for those who control a single small trade to spread misery among many thousand homes. Some time ago, the men employed in the New York lumber-yards demanded to be put on eight hours' time on the first of May. Their employers refused the request of the men to work the shortest hours in the busiest season, and the latter then modified their desires to an addition to their pay for overtime work, and a slight increase in drivers' wages. These requests were reasonable and proper enough, and there seemed to be a prospect that the employers would accede, when an order was issued for the whole force of building workmen to "support" the lumber-handlers. The result, which was probably foreseen and intended, was to unite the dealers in defence of their right to manage their own business, and deal with their own men, without consulting the walking-delegates, and the latter promptly seized the opportunity to declare a boycott against the sixty-eight lumber-dealing firms, and to prohibit all persons belonging to the Central Labor Union, which includes nearly all the building workmen in New York and Brooklyn, from doing work of any sort in any building where lumber sold by one of the sixty-eight excommunicated firms was used. As the lumber-dealers are quite sure that no houses will be built without the use of their goods, they can afford to view the situation serenely, while the promulgation of the boycotting decree will throw out of employment about a hundred and fifty thousand men. It is not a new observation that it is delightful to be a general, and to make war, when some one else pays the bills, but one would think that it must occur to the unfortunate privates before long that an "industrial contest" in which a hundred and fifty thousand men voluntarily deprive themselves of nearly half a million dollars a day in wages, for the sake of inducing, by this spectacle, a small body of lumber-dealers to add, in the aggregate, a few hundred dollars a day to the wages of their men, is not brilliantly planned in a financial aspect.

WE regret very much to hear of the death of Mr. Herbert Reynolds Best, of the firm of Walker and Best, who died at Omaha, April 25. Mr. Best was born in England in 1862, and was trained at the Royal Academy, and in the office of Edward Burgess at London. He went into business on his own account in London, in partnership with Mr. Pease, but in 1885 came to this country, and, three years later, formed a partnership with Mr. C. Howard Walker, of Boston. The firm of Walker and Best found a place ready for it among the most highly esteemed members of the younger generation of architects, and its beautiful work, in Boston and in Omaha, is well known to the profession. Mr. Best was a man of very amiable disposition, and his decease, at an age even earlier than that at which so many of our most promising young architects succumb to the overwork and anxiety of their trying profession, will cause sincere regret.

THE School of Architecture of the University of Pennsylvania appears to be rather the pet of the profession in Philadelphia. Not only is it managed mainly by some of the most distinguished Philadelphia architects, but outside architects take a great, and apparently judicious interest in it. Quite recently, the well-known T-square Club decided to establish two prize memberships, to be awarded annually to the students in the School of Architecture who should show the greatest proficiency in their regular designing work, in the opinion of a jury of members of the Club. The prize membership admits the holder, so long as he remains in the School of Architecture, to all the privileges of active membership in the Club, without the payment of any entrance-fee, dues or expenses. How the officers of the University look upon this intimate connection of their school with the profession outside, we are not informed, but it is to be inferred that they favor it, and the experiment is certainly an interesting one. For many reasons, architecture, which is less compactly organized than any other profession, would gain most by such organization, and one of the best ways of promoting, not only a good mutual understanding among architects, but the judicious training of those who will become architects later, is to encourage the reciprocal interest of students and practitioners.

MR. W. AUMONIER, in a lecture before the Society of Architects, reported in the *British Architect* of April 24, gives some suggestions about wood-carving which are well worth remembering. In the first place, he attacks the time-honored fallacy that wood-carving, to be good, ought to be made from plaster models. We all remember the familiar clause in specifications, which stipulates that "full-size models for all carved work shall be furnished and approved by the architect"; but Mr. Aumonier says, as we think truly, that the process of modelling is so entirely different from that of carving in wood that it is often unnecessarily difficult and expensive to follow a model, while the work, which becomes, to the carver, uninteresting and mechanical copying, is apt to be lifeless. The other extreme, of allowing the carver to chop and cut a given block of wood in any way he likes, he thinks also objectionable; and says that, in general, the best and most spirited wood-carving is done from full-size charcoal drawings, carefully shaded, so as to show the relief of the various parts. With such a drawing before him, the carver begins by excavating, so to speak, the deepest shadows, to the full depth. After the work is thus blocked out, he finds where, according to the drawing, the points of highest relief are to be, and cuts from them, gradually bringing the carving work into shape and detail, without sacrificing the point of paramount importance, the relative relief of the great masses. The ground, at completion, should never, as is usually done, be levelled to a plane surface, and still less should it be cross-hatched, or stamped with little x's all over, to "give relief" to the carving. Such treatment always makes the carving look as if it had been cut separately and glued to the ground, as, indeed, is very frequently the case, and imparts a cheap, poverty-stricken air even to the most careful work. Instead of this, the texture of the ground should not differ from that of the relief work, and it should be varied in surface, so as to bring the ground and the work as much together as possible, getting relief by deep shadows, and not by contrast of texture. Changing the texture for relief seems to have been originally a trick for making

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shallow carving look deep, and it has been blindly imitated, as if it were an artistic discovery, by nearly all modern carvers. In the best work abroad, however, it is now rejected, and a first-rate Italian or German workman will get all the relief and contrast that he needs in a thickness of an eighth of an inch, carving the ground in the same way as the raised portions.

A PIECE of political acting, which reminds one of the demonstrations of our own cheap politicians, came to an embarrassing end in Paris the other day. The subject of the appropriation to be made for work at the Louvre was under discussion, when a deputy jumped up, and indignantly protested against any appropriation being made to pay for the new work on the so-called "Daru staircase," the decoration on which, he said, was "a blow in the face of truth and patriotism." It appeared, according to him, that the mosaic-worker had put on the wall "an allegorical figure representing German art," and he demanded that the picture should be immediately destroyed. Two other deputies, wishing to make sure that treason had been committed before they decreed the punishment, took the precaution to go and look at the decoration in question; and, on their return, asked the indignant orator what made him think that the figure represented German art. "Because it holds in its hand a Gothic building," replied the patriot, who appears either to have imagined that the Gothic style was named after Goethe, or to have fallen in with Rosengarten's peculiar notions as to the origin of mediæval art. The two investigators, however, explained to the Assembly that France had quite as good a claim as Germany to the invention of the Gothic style, even if the little edifice in the hand of the figure had been in that style, but, as a matter-of-fact, the style was French Romanesque. As this slight correction appeared to remove the last chance of giving the "Prussians" a thrust through the person of the unfortunate mosaic-worker, the matter was allowed to drop quietly.

QUITE a sensation was caused last winter in the School of Fine Arts in Paris by the announcement of a programme for an important prize competition, the *concours Godebœuf*, which required the competitors to make designs for "the metallic decoration of an elevator-car and its enclosure." The programme went on to say that elevators had been hitherto treated in a purely utilitarian spirit, but there was no doubt that they might furnish a motive for a graceful and elegant composition. When the designs came in, it was evident that the novelty of the programme had excited much interest, and that the students had worked with extraordinary zeal and success. Not only was the number of competing designs unusually large, but the quality was surprisingly good, so that the jury awarded sixteen medals, and seventy-one first mentions — more than four times the number usually given in this competition, and, besides this, officially communicated to the pupils its "great satisfaction at the exceptional merit of the competing designs." More than this, after the competition was over, and the prizes and recompenses all awarded, a host of builders and elevator manufacturers appeared at the School, and, searching out the participants in the competition, bought from them a large number of the competing designs, and carried them off, no doubt to be carried into execution in scores of new buildings. It is hardly necessary to say that the announcement of a programme so modern in its character as this was a startling novelty in the School, which has the reputation of being obstinately conservative, but there are many evidences that a new and energetic influence is at work in the School affairs, and so successful an innovation is likely to be followed by others.

LA CONSTRUCTION MODERNE has begun the publication of some well-written and interesting letters on architecture in the Argentine Republic, by M. Pedro Ciprandi, who appears to be quite familiar with the modern building of other countries, although, as he says, the Argentine architect finds no demand for novelties in the way of planning in his own practice. On the contrary, the ancient type of house, about as primitive in its arrangement, to our ideas, as the Indo-Germanic mansion of the period of the Aryan emigration, is still universally accepted, and an architect who should propose anything different to a client would be looked upon as a dangerous innovator. This type, naturally enough, appears to be derived from the old Spanish or Moorish model of a house built, for security, around a court-yard, or *patio*, but, as the lots in Buenos Ayres, and the other principal cities, are shaped after the New York pattern, with a frontage on the street of about twenty-six feet, or ten varas, and a depth varying from a hundred feet upward, it is obvious that the introduction of a *patio* is a work of considerable architectural difficulty. However, as the Spanish-American must have his enclosed court-yard, which, in view of the stormy politics which prevail about him, he perhaps, has good reason for wanting, the problem is solved by placing it at one side of the lot, making it about twelve feet wide, and thirty feet deep, and, making an entrance to it by an archway under the front portion of the building, which occupies the whole width of the lot. At the back of the *patio* another section of the building extends entirely across the lot, and an archway through it gives access from the front court to the back yard, in which are situated the kitchen and its dependencies. The wide portion at the back of the *patio* is occupied, on the entrance floor, by the dining-room, while the street front is devoted to the parlor. The intermediate space is divided into bedrooms, which open on the court-yard, and derive their light from it, apparently through the open door, exactly as the bedrooms in the Roman houses were lighted from the peristyle. The members of a Roman family, however, could get from their bedrooms to the other portions of the house under shelter, by walking under the colonnades of the peristyle, while the Argentines, not having any peristyle, step from their chambers directly into the open air; so, to provide for inclement weather, doors are cut between the bedrooms and the adjoining rooms, by means of which, in case of a shower, people can be conducted from the parlor to the dining-room by passing through all the bedrooms on the first floor, which is often the only one.

LA SEMAINE DES CONSTRUCTEURS gives the statistics for the present year of the School of Fine Arts in Paris. The School, as every one knows, comprises five sections, those of architecture, painting, sculpture, engraving and medal-cutting. Including all these sections, the school has now about one thousand and fifty-three pupils. Seven hundred and eleven of these — more than three-fifths, are in the section of architecture. A few of these study with relatives, or under some architect who does not usually take pupils, but nearly all are attached to some one out of the ten great *ateliers* more or less directly connected with the School. Three of these *ateliers*, directed by MM. Moyaux, Gaudet and Ginain, are officially attached to the School, and are maintained by the Government. These State *ateliers* accommodate about two hundred pupils. The rest are divided among the outside, or "free" *ateliers*, of which there are seven, that of M. Laloux, the successor of the lamented André, and those of MM. Raulin, Pascal, Douillard-Thierry, Sédille, Daumet and Girault, and Blondel. The section of painting, which has two hundred and nine pupils, comes next to that of architecture, although at a long distance. As in the section of architecture, there are three State *ateliers*, those of Gérome, Delaunay and Bonnat, to which are attached about one-third of the pupils. The rest are scattered among outside studios, of which those of Carolus Duran and Bouguereau are the most famous. In the section of sculpture are one hundred and nineteen pupils, two-thirds of whom are taught in the three State *ateliers*, those of Falguière, Thomas and Cavelier; the others being scattered among many outside studios. Of the medal engravers there are five or six, and of the other engravers only eight.

THE French Government has responded with the highest courtesy and consideration to the invitation of the Americans to take part in the Exhibition at Chicago. A provisional Commission has been appointed, which, under the presidency of the Minister of Commerce, comprises such members as M. Hebrard, President of the Parisian Press Association; M. Antonin Proust; M. Georges Berger, the brilliant and indefatigable Chief Director of the Paris Exposition of 1889; M. Picard, of the Council of State; M. Alphand, Director of Public Works to the City of Paris; M. Larroumet, Director of Fine Arts; General Coste; M. Pallain, Director of Customs; M. Tisserand, Director of Agriculture; M. Cousté, President of the Parisian Chamber of Commerce, and many others; and is charged with the preparation of a plan for the participation of France in the exhibition.

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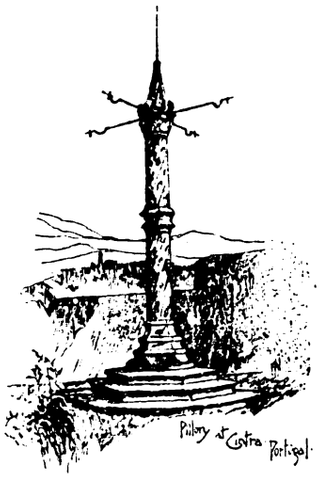
FRENCH ARCHITECTURE.[1]—VI.

THE RENAISSANCE.



IN the sixteenth-century unity became an accomplished fact. Though the people of Gaulish stock, modified by such intermixtures as had been effected during centuries, had not yet acquired the social preponderance; though the highest functions were not entrusted to them; though the masses filling their ranks did not enforce the will of the majority, as they did later, it is nevertheless true that they had permanently come out of that state of speechless oppression in which they had so long dwelt. They spoke; they acted; and already there was a foreshadowing of the fact that, constituting the majority, they were the power. They had their parliaments to defend their interests, discuss questions of taxes and furnish subsidies; even royalty was compelled to appeal to them through the States-general, and many a time was it forced to bow to the authority of public opinion.

All through the Middle Ages the municipalities and communes, wholly independent of one another and floating like scattered islets in the floods of barbarian invasion, had contended singly against feudalism, and one by one they had been subjugated. But when, by a long and toilsome process, royalty had gathered all these separate and even hostile elements into one group, a nation was created, a nation which was thereafter to be feared, both on account of its numbers and the extent of its territory, and which was all the more redoubtable because, up to the time when it became conscious of itself and refused to submit to any suzerainty other than its own, its power was wielded by one hand.

We can now take a final view of the field already covered; before entering upon an entirely new world, let us once more briefly note the long succession of historic events thus far bearing upon our subject.

In the Gallo-Roman period Roman centralization, by which all individual forces were absorbed to the exclusive profit of the State, had at first rapidly developed a brilliant civilization, but this in time perished from its own excesses; the common people, that is the Gauls, were then a mere herd, without will or power of initiative, and in blind subjection to numerous functionaries appointed by a distant government. The ties by which so many provinces and conquered nations were bound to Rome had been so distended that they broke at the first onset, and this vast empire, which, viewed from a distance, appeared to be a wisely ordered structure, presented a picture of general disaggregation and ruin. It required nearly ten centuries to evolve a new social state out of this disorder; the infusion of barbarian blood was needed to retemper generations debased temporarily by the decay of their civilization; and, on the other hand, this regeneration of the Gallo-Roman race was a necessary condition of the revival of patriotism, of that spirit of sacrifice and devotion to the abstract conception which we term the State; patriotism was a thing unknown to the Frankish tribes and it was, moreover, incompatible with their jealous passion for individual independence.

Royalty had renewed the attempt brilliantly inaugurated by Charlemagne, but abandoned by his successors, and had perseveringly, though slowly, carried it to a successful issue. On a less gigantic scale, but with the more lasting materials scattered over the country and in more solidly cemented courses, it gradually reared its constructions on the old Roman plan. In fact, except for modifications necessitated by altered circumstances, the reorganization of law and justice and of the public and military administration was largely made, like that of Charlemagne, on the ancient model.

This transformation was destined to effect a transformation in manners and customs: in the sixteenth-century, with the uplifting of the popular masses, sociability, the specially characteristic mark of our race, again became dominant, while the wild spirit of independence which led the Franks to live in a state of isolation disappeared never to return. As early as the fifteenth-century, life in common had begun to seem desirable and the influence of this made itself felt; the dwellings were made more spacious, more comfortable, more accessible and, above all, more open; the stronghold was gradually abandoned and, at last deserted, was doomed to fall into ruins; in the cities, on the other hand, great residences and palaces were erected, and pleasure houses sprang up all over the country. Dwellings, palaces and châteaux lost the stern aspect of solidly walled-in and scarcely lighted fortresses; the owner of an abode began to throw open his gates and welcome guests at his board. The Valois monarchs set the example with gay court receptions and fêtes which were attended by vast concourses of people; and thereafter every one gave himself up to the pleasures of social life.

Could such a radical and even revolutionary transformation of manners have resulted merely from the natural changes of time? A people does alter from century to century; but so long as its ethnological composition is virtually the same, the modifications are largely superficial and do not affect its fundamental characteristics, from the siege of Troy down to the age of Pericles, the Greek is always the same light, shrewd individual; from the establishment of the Republic to the Empire of Augustus, the Roman is ever hard and despotic. But the Frank dwelling in his fortified castle, sombre and solitary, surrounded by his wife, his children and his armed retainers, is by no means the brilliant and thoughtless Frenchman of the Valois court; still less is he the courtier and "*l'honnête homme*"—that is to say, the courteous man, the maker of fine speeches, the gallant—of the court of Louis XIV. Time itself is powerless to change human nature thus completely. As we have said, such a transformation could only have been accomplished by the yielding of a race which had long maintained the social preponderance to another which had, in its turn, gained the supremacy.

The part played by architecture changed also, for it always reflects the manners of the day. There had long been but one common conception capable of a common expression, namely, religious faith. In the eleventh-century religious thought had united mankind in a single aspiration; in architecture, the church then became everything. The dwelling was merely a covered abode, the château was only a fortress; to the building of the church, on the other hand, man brought all the treasures of grace, imagination and beauty pent up in his soul. But from the fifteenth-century the place retained by the church in the history of architecture is only a secondary one; palaces, castles and sumptuous residences monopolized the products of all the arts. It was for himself that man now studied the subtile charms of architecture, painting and sculpture; he drew upon them for the most refined pleasures of existence.

We see displayed in this neither the sentiments of the Christian nor the instinct of the man of the north. They both keep steadily in view the misery and sufferings of humanity: the latter, hardy and vigorous, aims, by a persevering and relentless struggle, to remedy these evils; the Christian seeks consolation for the pains endured here in pious deeds and hopes of a bright hereafter. The periods of greatest religious fervor are therefore those of the greatest human misery: as for example, is seen in the frightful sufferings of the last days of the ancient world, or in the Middle Ages, under the despotic empire of violence.

We are indebted to antiquity, and especially to Greek antiquity, for that sentiment which makes life attractive to us in a tolerable social *milieu;* which leads us to seek our happiness in the free expansion of our faculties.

In this way modern thought joins hands with ancient thought across the gap of centuries. The above shows in brief the sources and formative processes of modern society in France. In the period upon which we are about to enter this society assumes a new character, wholly unlike that which we have hitherto observed.

The great facts of our history from the sixteenth century on are well known; the wars with Italy, the Reformation, the religious wars which offered a pretext for an uprising of the last leaders of the aristocracy; the definite consolidation of the royal power and the humiliation of the aristocracy under Henry IV and Richelieu; the supreme glory of the monarchy under Louis XIV, and then its rapid decadence; the advent of the bourgeoisie, and later that of the democracy. We will not

[1] From the French of P. Planat, in Planat's "*Encyclopédie de l'Architecture et de la Construction.*" Continued from page 81, No. 802.

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dwell upon these facts which are fresh in every one's memory. We have perhaps already devoted too much space to the slow and painful growth of French nationality; but we have deemed it necessary to give emphasis to this in order to make it clear that Gothic art was especially the work of a conquering race, of a minority that long dwelt apart from the conquered inhabitants of the country, without mixing at all with them; afterwards, as the result of unions forcibly effected, the gradual demoralization of feudal society and the growing influence of the customs of the majority, the vanquishing race sank from its position of independence and supremacy and underwent various modifications; the subjugated people at the same time asserted themselves, gradually recovering their influence, and, finally, gaining a real preponderance. As we have seen, architecture passed through corresponding phases; as the race which had created the religious and feudal art of the Middle Ages lost in importance, its architecture changed in character and at length disappeared with it.

From the sixteenth century it was an entirely different race that formed public opinion and impressed its feelings and tastes upon France. The almost immediate reaction was general and violent; it manifested itself in a detestation of the past coupled with a hatred of the tyrannical race which had so long remained foreign on Gaulish soil; and which was so full of vitality that it survived for centuries, reappearing at the Revolution more bitter than ever. This accounts also for the scorn in which Gothic art was long held; it was a noble art, but it was the product and the expression of an odious past.

The barbarians of the north had not, however, been the first invaders of our land; yet how different were the traces and the memories left by their invasions from those which remained from the Roman occupation. The latter had, it is true, cost much bloodshed, for our ancestors made a warlike and valiant defense; they were conquered by their dissensions and clan jealousies rather than by Roman discipline and superiority of arms. Nowhere, be it noted, did the Roman occupation leave behind it that permanent hatred engendered by the barbarian conquest. This was because Rome held out to the conquered, in compensation for her triumph, the benefits of a higher civilization and of a regular organization; the better intellects among them were immediately attracted to that centre of education whither the inquisitive and active spirit of the Gaul naturally impelled them; others enlisted in the Roman armies and gladly took their chances in the hazards of great military enterprises; even the masses watched with satisfaction the suppression of the perpetual internal conflicts, the establishment of order, with a regular municipal organization, and a systematic gathering of the taxes — which were in part applied to public works — and the founding of new cities and great institutions.

Besides, after the Roman conquest unions were immediately formed and the two races were soon considerably blended; a sort of equality was acknowledged on both sides; important government functions were delegated to the native inhabitants, some even at Rome. Nothing of the kind happened after the barbarian invasions. The Franks brutally dispossessed the Gauls; they sowed ruin throughout the land; then, haughty and scornful, they entrenched themselves in their fortresses. It was the temporary breaking-up of all civilization, and nothing was offered in compensation for the wreckage.

It is not astonishing, therefore, that memories of the past — which are far more lasting among the common people than might appear at first thought — afterwards brought about a violent and most unjust reaction against everything that perpetuated the image of that past, arts and institutions alike. Nor, in view of what has been said, is it astonishing that all tradition was cast aside at the end of the fifteenth century and that the incoming architecture gave evidence of no relationship or resemblance to the architecture of previous centuries.

An attempt has been made to account for these extraordinary divergences by assuming that Renaissance art was imported one fine morning from Italy, as a full-grown shrub, and merely planted in French soil. This assumption shows a complete misapprehension of the real hold which the roots of an art have in the very soul of a people. A distinguished botanist may bring a cedar here from Mount Lebanon in his hat, and thus propagate its culture; but it is not usually in this way that an art originates, especially one as fruitful and as productive of new varieties as that of the Renaissance.

What did in fact happen? Could the sixteenth century give birth to an entirely new and original art? No, the time had gone by for that; none of the necessary conditions existed. There has not been in Modern Europe, and never can be, a new race, bearing in its bosom a hitherto unknown sentiment. And yet, on a smaller scale, a phenomenon did then occur which possessed some likeness to the art creations which we owe to the Arabs and to the peoples of the north. These are the facts. In the sixteenth century the French nation was constituted: Gauls, Arverni, Iberians, Celts, Goths, Burgundi, Austrasian Franks, Neustrian Franks and Normans, all, ceased to have a separate existence; the peoples of the north and of the south, so long divided by an almost impassable barrier, took the steps which resulted in their ultimate fusion into a single nation; already the most marked differences were effaced. The alloy was assuming the proper proportions which were to make of the Frenchman a distinct individual, with his own lineaments, quite unlike those of the Fleming, the Italian or the Spaniard. Certain features of the primitive races would, in the nature of things, be perpetuated, while others would entirely disappear; again, others wholly new would show themselves; as in bronze, properties of copper, zinc and tin may be detected in connection with qualities of hardness, cohesiveness and elasticity which belong to none of these metals.

In one way, therefore, it may be said that a new stock was formed in the fifteenth and sixteenth centuries; but it was singularly complex, and in no sense was it the unsophisticated race, endowed with the simple and mighty primitive passions of a barbarous people just appearing on the confines of civilized life. The Italian wars brought it in contact with a remarkable civilization, at that moment the wonder of the world; and the French nation was itself awakened. But we must insist on the wide difference between these conditions and the beginnings of civilization among barbarians; in this case there was no untouched, virgin temperament ready to borrow from a foreign civilization merely such elements as were needed for the constitution of an art peculiarly its own, an art which in its later developments would take on a physiognomy wholly unlike anything in that from which it had drawn. In Italy, France came in contact with a civilization whose sources were hers also; she merely welded again her future to her past. The term Renaissance is, therefore, not misleading; nothing like a real birth is discernible in the blossoming out of art in the sixteenth century, neither in Italy nor in France. Italy rediscovered the arts of antiquity, she promulgated her discovery; France united her artistic and literary development to her remote past.

The Italian influence was of mighty import to us; it opened up the way for us. But is this admitting the truth of the claim that we merely transplanted Italian architecture? In refutation of this claim we need only ask if the castles of Blois, Chambord and many others in France are, in any sense, copies of Italian palaces. Even when French architecture adopts Classic dispositions, it displays a grace and suppleness, a fruitfulness of arrangements and delicacy of ornamentation which plainly bear the stamp of the French temperament. The Italian Renaissance is indeed beautiful, but the French Renaissance is not less so, though its beauty is often of a very different type.

An architecture can never again be created out and out; forms, orders, or dispositions absolutely unknown can never again be invented; but, under the general proportions and within the great lines, which cannot hereafter undergo any marked change, multifold variations may be introduced amply sufficient to modify deeply its character. For example, an evident relationship certainly exists between the Henry II, Henry IV, Louis XIV and Louis XVI styles; the so-called Classic tradition has left its impress on each; but does it follow that any of them may be for a moment confounded with another?

Within the bounds of classic unity an extraordinary variety afterwards appears, art does not again pass through a radical revolution, but it develops in all directions, being constantly renewed and transformed. Perhaps, in the end, however, fully as much is gained as lost. The more primitive an art is, and the more well-defined its character, the more entirely original it shows itself to be; but the less freedom, on the other hand, is allowed it in varying this character to escape monotony. What is more nearly like a Greek temple than another Greek temple, a Roman edifice than another Roman edifice, no matter how far removed from each other the two regions in which they are encountered? One Arabic mosque differs but little from another.

Even in Gothic art, which is more flexible because, in the course of time, it came under the influence of several different

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races and because in this way modifications were early introduced, — all of which the ardent partisans of the style term decadence, — even in Gothic art does not a church of the thirteenth century closely resemble another church of the same century? Is not a German cathedral of the thirteenth century much like an English or French cathedral?

During the modern period, on the contrary, we find an Italian art, a Spanish, French, Flemish, English and German art, each sharply defined. Interchanging and interpenetration of forms, of course, occur on all sides, but at the same time there are very pronounced differences which never lessen in the least. Every national art preserves a physiognomy which continues to be characteristic of it, and yet it appropriates elements from without, transforming them to suit itself; France came under Italian influence, and later borrowed from the Hispano-Flemish school; but, on the other hand, the French school has made its way into foreign lands. Hence come the continual modifications which, though marked and fertile, do not make it possible for one modern style to be confounded with any other.

The admirable suppleness of modern art has enabled architecture to adapt itself to all the variations in manners, of every people and every generation, and to translate them with marvellous accuracy.

The small mediæval Italian republics, hardly out of their perpetual conflicts, which were all the more bitter because the opponents in every case were near relatives, became aristocratic, but they were still divided and powerless: a brilliant court existed at Rome, the centre of wealth and home of the arts, but it was stripped of all military and territorial powers, and woman was excluded from it; in Spain, the vastness of the governmental possessions concealed the precarious character of the monarchical authority, which was, in fact, firmly established nowhere except in the two Castiles; the other provinces considered themselves as almost independent and were restive under the Castilian yoke; the sombre Spanish genius prescribed the most gloomy existence ever known in a European court.

In Germany, that individual spirit was maintained which had so long kept life in the free cities and independent electorates; these were but poorly held together by the imperial bond; while in Austria the struggle between the various nationalities — Germanic, Slavic and Hungarian — and the incessant warfare against the Turk had so far prevented the formation of a brilliant and polished court; the prestige of the imperial sceptre was little more than a vain show, with no strongly established authority behind it. Each of these peoples had its Renaissance architecture, which reflected its social condition. Italy had her palaces, which were mainly colossal galleries for the display of paintings and sculptures; Germany and Flanders had their communal buildings, as Spain her Escurial.

Monarchical France followed quite a different line. With the reign of the Valois monarchs, unification was foreshadowed in the centralization of power; the idea of the fatherland had sprung up. It must not, however, be supposed that it was very deeply rooted as yet; the provinces, it is true, were united, but they were not welded together; the aristocracy still remembered the feudal independence; their antecedents made it impossible for them to comprehend fully the existence of a common interest, superior to their private interests. After the long and violent crisis of the League came the last feeble convulsion of the Fronde, in which the aid of Spain was sought, now by the parliamentary and popular party of the Fronde, now — with far fewer scruples — by the aristocratic party of the Princes; in which we see Turenne, Condé and many others serving, sometimes the Crown, sometimes the insurgents, sometimes the foreigner. It was only under Louis XIV that the task was accomplished and that the idea of duty became absolute; from that moment, these same men are seen turning with horror from the very suggestion of treason to the country, that is to the king, for the king was but the incarnation of the idea of the Fatherland. We have since formed a wholly impersonal notion of the State, and we shrug our shoulders when reminded of Louis XIV's "*L'état, c'est moi.*" But this shows our lack of comprehension of the ideas of days not our own. This saying of Louis XIV merely puts into words the universal feeling of the time, and the men of the seventeenth century would not have understood any other. Therefore, after 1710, notwithstanding reverses, notwithstanding the mistakes committed, notwithstanding the prevailing misery, no one flinched before the threatened invasion of combined Europe; all France rallied close about the old king, overwhelmed by public calamity as by domestic sorrows, standing alone among the tombs of his sons and grandsons; from the far away provinces the people watched with respect, as the symbol of the nation exhausted but still determined to battle, the septuagenarian monarch burdened with maladies and almost in the death throes, but erect, gathering his failing forces to face the enemy, and eager to take his place at the head of his last army.

Society formed under the influence of this strongly centralized royalty had its vices; they are known to all. It was, nevertheless, an object of admiration to all Europe, and France long owed to it her prestige. It was preëminently military, and at the same time most refined. The aristocracy had been definitely subdued, and now looked to the king alone for official positions, honor and fortune, all of which were to be obtained by army service; every spring they left Versailles, the city and the châteaux to take commands in the army for a campaign. A few sieges were attempted, a few battles were fought, under orders of the princes of the blood; in the autumn, when the troops were settled in winter quarters, they returned to the court to receive their rewards and resume a life of pleasure. They played the part of courtier, they carried on intrigues with perfect grace, though often touched with perfidy; they joined the king in his repasts and his sports, they attended the *fêtes*, masked-balls, carnivals, plays and ballets; in the intervals they frequented the by-streets, where wit had its abode. Over these pleasures of a leisure hour woman presided as queen; nobility, refinement and gallantry reigned in the art of speech, qualities demanded at the court of the queen-mother, and which were also developed under the influence of the Princess Henrietta of England,[1] and, later, of the great favorites. To this court of Versailles, the head of a vast country, which was already well ordered, and was organized as no other European State had yet been, flocked the most illustrious army leaders and their officers, prelates, princes of the blood, ministers, important government officials and ambassadors of all the powers, who bestowed upon it a splendor that has never been equalled. The city imitated the court; in the provinces, the governors or their lieutenants officially opened the estates, received, kept open table and gave *fêtes* during their tenure of office, thus reproducing in the most remote parts of the kingdom a picture of that Versailles on which the eyes of France and Europe were fixed. From the highest to the lowest, in the most distant castle, this sumptuous, polished and refined life was copied.

What were the architectural requirements of this society? Spacious, richly-decorated apartments, in which the court could stand in state while awaiting the passage of the king; in which painting and sculpture should play a secondary, decorative rôle; not the principal, as in the Italian palaces. In an Italian gallery art was the chief occupant: here it was society; there architecture supplied a setting for pictures and statues; here pictures and statues adorned the architecture. French society demanded festal halls and gardens which might serve as open-air drawing-rooms, prolonging the architecture of the noble and stately palaces; gardens embellished with white allegorical statues and colonnades, with trimmed hedges enclosing rooms of living green; gardens furnished here and there with marble stairways, whereon the court could range itself in successive rows; gardens with canals and lakes dotted over with pleasure-galleys bedecked with flags, and with carefully managed perspectives opening in all directions.

Under Louis XVI, it became the fashion to ridicule these geometrical *parterres*, these trimmed yews, these waters tamed to spout in complicated patterns and figures, this entire absence of all real nature. Ridiculous they were, but were the dairies of the Trianon much less so? It should not be forgotten that the destination of these gardens precluded all pretension to rusticity; that their architecture could serve only as a setting or background for the toilets of ladies in grand state, and the costumes of men who dressed in velvets and satin brocades; surely damp grass, wet ground, bushes and underbrush were out of the question in the circumstances.

At this period the laws of polished society swayed everything, and everything was sacrificed to its behests; most of the old castles of the fifteenth and sixteenth centuries, which were mouldering behind their stagnant moats and thick walls, were demolished, to be reconstructed on more ample and more convenient plans. No more of those interior courts, high and narrow, damp and dark; no more halls with bare walls,

[1] Madame de Lafayette has admirably depicted this in her history of the Princess.

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lighted by rare, loophole-like slits. In imitation of the royal palaces, reception-halls, vast and well-distributed apartments — for people had then just begun to give heed to what we term "interior distribution" — rooms for the servants, who were lodged under the same roof, extensive stables, carriage-houses and numerous out-buildings, all the accessories of an easy and luxurious life, were now found necessary.

In the city, likewise, from the street, which was still usually narrow and dirty, and was nothing more than a way of communication, a lofty *porte-cochère* gave entrance to a vast court, where a great number of carriages could freely circulate; a noble flight of steps hospitably offered access to a well-lighted vestibule. Galleries with high windows opened, even in Paris, on broad, regularly laid-out gardens, which imparted a seigneurial air to the edifice. Studying the old city maps, one is struck by the number and extent of these gardens. Their existence explains the fact that no little attention was paid to the plan of the streets.

The principal story, consecrated to receptions and containing the grand apartments, frankly assumed dominant importance; the other stories were made dependent upon it, or were entirely sacrificed. This was a great advantage to the architect, who was thus furnished with the necessary conditions of every composition; that is, a main theme to be accentuated, with an accompaniment always to be kept subordinate to it. A pediment decorated with emblazoned escutcheons or recumbent statues, a balcony supported on consoles, an ornamented key in the coving of the door; the other parts of the façade left smooth, or slightly enriched by a few simple and light mouldings; certain well-marked, great divisions to bind the whole together: the architects of the seventeenth century found in these, quite naturally, the motive of an imposing and symmetrical composition.

What scope for the imagination, let us ask, is left to the artists of the present day when called upon to superimpose six or seven stories, one above the other, with the stipulation that all must be of equal importance, since business interests make it imperative that the occupant of the fourth story shall be as favored as the one on the main floor?

(To be continued.)

A RUN THROUGH SPAIN.[1] — XI.

A KEEF HOUSE AND A HAREM.

THE next morning was bright and cheerful and so we started out for a tramp up over the hillside, and down again through the town. For, as nearly all these little towns are small in extent, one passes and repasses over the same ground two or three times, in order to reach any given object of interest. Through narrow paths lined with cactus and palm trees, we threaded our way up the hill, Mohammed pointing out something of interest, and saying a word in Spanish to explain the situation. Here were men building a house with reeds and grass. They had cut them by the bundle, and tightly bound them together. These bundles were no more nor less than big stones, and they piled them one upon the other, cementing them together with mere mud. Thus every man seemed his own builder, and I heard of no strikes on the job. Probably the plumbing was as primitive, and the heating so simple that one man did the whole work.

As we got farther up the hill a glance around towards the bay showed the flat roofs and the mosque pinnacles white and glaring in the sunlight, and we began to feel the tremendous heat. Patecola trudged along without minding it at all, cool as a cucumber, the rascal, with nothing on but a long white *burnoose*, and sandals on his feet. He came to our rescue, however, by leading us towards a little white mosque surrounded by palmetto. From these he collected a lot of broad leaves, and weaving them into a mat, soaked them in water and bade us place them inside our hats. Then with these improvised umbrellas we trudged along without trouble.

We came soon to another of those white, mosque-like, buildings away on the hillside, and, will you believe it, there sat a couple of

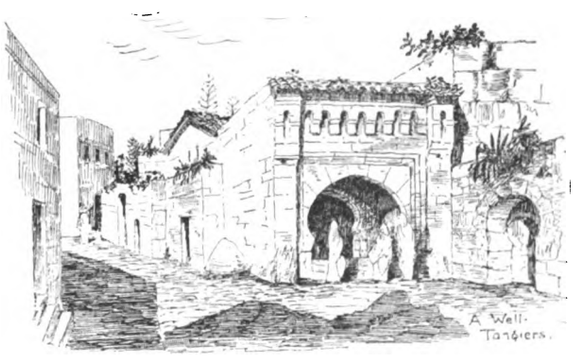
English artists shaded by their green umbrellas, and sketching the object of our own trip!

Patecola sat down in the broad sunlight and watched us as we sketched, wondering, no doubt, what in the world there was beautiful in the old mosque that he had always seen in its place. Poor fellow! Like every Moor or Arab, he believed that when we had sketched or photographed a thing we possessed its soul, be it man or mosque, and so, later on, when I endeavored to take views of groups of Moors he warned me not to do so, as it would bring down the wrath of the people. They are terribly superstitious, and will allow nothing to occur which they cannot understand. Nevertheless, I found that their souls were not extremely expensive, for I bought several of them at another time for a pesata apiece, and therefore hold possession of several good specimens of this peculiar internal organ. But I found it was not best to experiment too far on them, as a mad Moor or Arab is not an extremely pleasant subject with which to come in contact.

That evening we asked Patecola what there was interesting to be seen.

"Will you see a harem or a keef-house?" asked he.

Well, we thought, the daytime for the harem surely, and the evening must be just the time to see the customs of the keef-house, so we started out after dark, down the street where still lay bundles of rags and naked humanity awaiting the early dawn to again go to work. The little lantern twinkled through the darkness and seemed to add an uncanny appearance to everything we met. Now and then a bundle of rags rolled over and gazed up at us, with a curse for awakening it. Not a light seemed visible any where, but ever and anon little rays of light shot out from beneath a door or through a chink. Thus we threaded our way through little alleys, hugging closely to Patecola, I can assure you, and almost expecting every moment to be waylaid by some assassin or robber. Such suggestions were intensified as we, all of a sudden, turned a corner and came upon two



drunken Arabs, half-naked, and cursing like troopers. But they seemed not to notice us as we elbowed past them, and soon arrived at a little low door where not a glimpse of light could be seen. A signal was given which admitted us, however, and we entered a low-studded room, possibly fifteen feet square, the back of which was lined with Arabs and negroes.

[1] Continued from No. 800, page 54.

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Four musicians kept up a low melody on guitar, tambourine and tom-toms. As we did not enter the charmed circle we were allowed to keep on our shoes; but Patecola after giving an order slipped off his sandals and joined the group within, grinning good naturedly at us the while.

Soon the host prepared to make coffee for us. He took a half-cup of pure grounds, filled up the cup with water, and placed the whole over a little forge-like stove. Soon it boiled, and after stirring it for a moment he handed it to us together with a little wooden spoon, and proceeded to fill a small pipe-bowl with keef. Not to be outdone by the rest of the natives and with a certain degree of curiosity I also took my pipe and puffed away, until a drowsy feeling began to come, which had it been continued would probably have introduced me into the elysian fields of happiness and bliss, with dreams no doubt of the voluptuousness of the harems in the neighborhood. But a sturdy poke in the ribs by my companion of the gentler sex brought me to myself, and the low rhythmic music of the squatters changed from heavenly music to the light love ditties of the Arabs, while the harp of a thousand strings became again the rasping twang of the guitars and tom-toms. Patecola, meanwhile, had been having a pleasant little time with his comrades, and was soon ready to take us home again, where we arrived in safety. A most agreeable fellow Patecola, and as true as steel!

Our Jewish friend of voluminous languages laid out the next day to go with us to the harem, although he admitted that he could not himself enter. Neither could I, but I was, however, allowed to sit outside and pay all the fees, which was supposed to satisfy me. The aged eunuch was somewhat interesting, however, and occupied the time telling stories which were in turn translated by our Jewish friend. I must let the ladies tell the history of the harem and what they saw and heard.

"The big door that had opened to give us entrance closed with a bang, and we realized that we were locked into a harem. But we could not turn back, so followed our big attendant through the dark passageway that led to the interior. And what a terrible ogre she seemed, when we got a good look at her. She was as black as ink, was over six feet tall, and might have strangled us without any

A·MOORISH·TILED·PATIO·

difficulty. But her face was wreathed in smiles, as she looked at us, so our fears soon vanished. Imagine, if you can, an open space with beautiful columns inlaid with glistening tiles and supporting a sort of balcony above. The whole court is tiled and in the centre is a large basin from which spouts water. Along the sides are alcoves, which are reached by one step, and inside of which are luxurious couches hung with curtains of a soft texture and delicate color. As we approach a beautiful, delicately-formed woman rises slowly from one of them, who walks with a slow voluptuous grace, and is enveloped in a soft gauzy wrap that seems wound around her body. Her eyes are large and gaze at us with a sort of bewildered look as if asking what we desire of her, but the attendant says some few words which tend to reassure her, and she moves slowly away, leading us to her own quarters. Here she shows us around, moving with a languid grace and pointing out object after object of her toilet. She takes a bit of charcoal pencil, and with a quick movement draws it under her eyelids, leaving the dark rim exposed, which we had noticed and wondered at. Then she takes off her string of golden beads, and her huge bracelets of gold and allows us to examine them thoroughly. But meanwhile, she is examining us, our hats, our rings, our collars and ties and we cannot but suppose that she is as much interested in our make-up as we are in hers. Indeed she must be, for she fingers it all wonderingly and seems to question its use. How we would like to be able to talk with her, ask her about her sisters of the harem, where her home had been, how she had been selected as one of the wives of the old Moor, for we found out that there were ten of them besides herself, and that they all followed much the same life of luxury and ease. But of course we had to be content with gazing at her in wonder at her whole life, but yet intensely interested in every movement she made. Several of her sisters also made their appearance and it cannot be denied that the whole scene must have looked much after the order of a circus of mutes. As we were going away towards the outer court again, they gathered about us, and with many a shy laugh softly shook our hands, saying good-bye with a pretty broken accent, an accomplishment which seemed to please them mightily. Coming out through the same doorway we found our companion impatiently awaiting our exit and nervously smoking away. Evidently his companionship with the big eunuch had been just as pleasant, or as interesting as ours had been with the bewitching wives, but nevertheless, he was glad to see us come out again in safety."

I could not get even a peek at this earthly Heaven, but being told by our Jewish friend of a harem near our hotel, which could be seen from the roof, I wended my way up to the roof one day and looking over saw several women under the rule of a huge black servant. But they were all at work, a fact which so dissipated any of the ideas proper to the harem that I gave it up in disgust. This was a common man's harem no doubt, and his wives had to work like the rest of humanity.

We intended to leave Tangiers on Monday. It was already Saturday morning when I bethought myself of the fact that we had not obtained several trinkets that we had intended to buy, so spoke to our Jewish guide.

He replied that he had a friend who kept his house full of just such things as I wanted, but as it was Saturday, the Jewish Sunday, he did not think we could buy anything. We could not get ourselves to trade on our own Sunday, so had about given up hope of carrying away with us any objects but those we had already bought. Here came in the cupidity of the guide. "Possibly you may get what you want, and I will introduce you to my friend," he said.

"But what good" we answered, "if we cannot buy."

"Possibly you may buy," he replied, "and not pay for your articles to-day."

We agreed that that was a most satisfactory way to us, and so started off to our Jewish house. The door was shut, and the grating lowered, nevertheless a curious knock caused it to be opened, and we entered a court-yard filled with tropical plants and tiled with glazed colored tiles. All around was a colonnade of arches, and above us was a balcony. But what seemed more beautiful were the dozen or so of hanging-lamps of all shapes and materials, from one of which issued a perfumed vapor which permeated the whole *patio*. Our old Jew entered, and with a shrug of his shoulders explained to our friend that it was Sunday and he could sell nothing. His eyes twinkled, however, with an avaricious gleam as he saw "*Americano*" written on our faces, and our guide immediately pulled him along toward the stairs which he know led to the curio room above. Of course we followed, and were soon admiring lamps, guns, silks, and an abundance of beautiful things. The old fellow watched us, protesting all the while, but evidently fast overcoming his scruples. We picked out a dozen things, or rather our guide piled them up as we admired them, and soon began to haggle for the price.

"'Tis Sunday, I cannot sell," he murmured.

"All right," said our guide, "my friends will not buy but only admire." We meanwhile figured away on a slip of paper.

"But I must not sell to-day, *Señor*," muttered the Jew in agonizing voice.

"You need not, father, I will sell for you," persisted our guide. But the old fellow turned away his head, and nearly wept at the idea.

This sort of pantomime lasted for a half hour, he protesting, our guide quieting him, we picking out an article here and there, and piling up bits of gold in our hands.

It was too much for the cupidity of the old Jew, for he allowed us at last to name a price, haggled at it with tears in his eyes, wringing his hands meanwhile, and at last allowed us to depart with our treasures, by leaving the gold on his table.

While walking through the dirty alleys, one frequently hears a great shouting and talking, all in the tone of a recitation, and upon approaching, a little doorway will be discovered, which gives entrance to a room without windows and generally with no floor of wood. On the ground a score or so of little children sit cross-legged, and shout out their monotonous song. It turns out to be the public school, and is dominated over by an old Moor, who also sits cross-legged and reads off portions of the Koran which the children recite after him. This is all the teaching they get, it is said, in the native schools, and thus do they have driven into them the principles of Mohammed. which are calculated to keep up the ancient faith which they only too clearly see is giving place to either Christianity or absolute negligence of any thing. All the little heads before us are shaved close, with the exception of a little patch on top, just like a Chinaman, or at the side and twisted up with a ribbon knot. They all wear little hooded cloaks, only one garment, which, when they stand up, make them look like miniature monks; but they have little of the inward spirit of a monk, for they are saucy and intolerable little fellows, and exceedingly troublesome. If you look at them and smile or make some remark, ten to one they will spit at you, and shout back some horrible curse which may be a blast on yourselves or even your past generations. "May Allah curse the ashes of your grandfather," shouted one little fellow whom we had simply touched on his hood playfully. "Curse you Christian dog," is as common with these little tots as a morning salutation, if you undertake any liberties with them; otherwise they simply glance up at you and scamper away as fast as their little bare legs will carry them.

The learned old Moor who "does the literary" is an interesting specimen, and although we had seen him often in Spain, he was none the less interesting here. He has a horn of ink tied to his cloak, and he sings out in a mournful voice as he scribbles away. He is a scribe who will write your letters for you, for, remember that, here in

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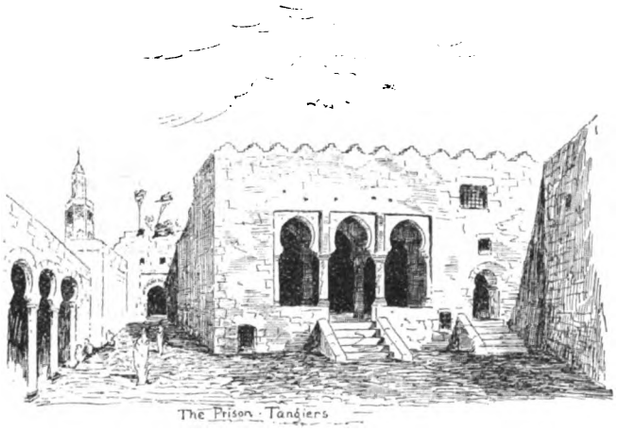
this barbarous country, only a few can write, and many cannot read. This old fellow will write you a love-letter in the most charming manner, putting in all the stock expressions of endearment, if you will but give him the name of your lover, and the main points of your argument; you may tell him your secret thoughts and aspirations, and he will jot them down, and forget them forthwith. Any bit of gossip he will enlarge upon with consummate skill, and is, on the whole, a delightful old fellow, and a great favorite with the ladies. He also reads any letters received by the ignorant, and if he remembers any of it he never is known to tell it, as that would be a betrayal of the trust reposed in him. A delightful old fellow certainly, a writing-machine, a reading-machine, a regular secret safe, locked by an invincible key.

Still we wander around. In a little square surrounded by high walls are two buildings, yes, three, which claim attention. Patecola says they are the law house, the mosque and the prison. Aged Moors are sunning themselves in front of the first, while a few of them enter the second, and all that possibly can keep away from the third. So we enter the prison, a room with groined ceiling of plaster, and absolutely empty with the exception of a wooden bench, on which reclines the keeper, who appears to have nothing else than his long gun as a companion. Near his head is a hole in the wall about two feet square, heavily barred, and through which may be seen a half-dozen wretches in what might be called the *patio* of the building. We all took a peep much as we would through a telescope, and all saw the same wretched picture. The prisoners had hardly anything for clothing, and the dirt and filth was so thick that any respectable



The Prison - Tangiers

pig would be obliged to pick out his steps, and would turn up his nose in disgust. One of the prisoners was a tall fellow with his face ornamented by an arabesque ornament in yellow paint apparently.

"Been painting the town yellow?" I asked of Patecola.

"*Si, Señor*," he replied. He is a Rifan from the mountains, a robber of the most approved style. They attack travellers and have no pity whatever, but will murder or rob as it takes their fancy. This one was captured when he tried to sell his booty, and will be kept here a long time.

"Ugh, Patecola! You mean to say that they keep prisoners in this style?"

"*Si, Señor*," he replied, grinning, "but what would you have for a prison? If it were any better they would prefer it to working and be here all the time."

At the mosque near by we found that "no dogs of Christians could enter," and there stood at the door an old fellow to enforce this ancient tenet of the Moorish law. Had we been foolish enough to have endeavored to enter, I believe we should have been mobbed, for the group of turbanned Moors gathered around us as Patecola asked to be allowed to take us into the sacred place, and refused with threatening looks and gestures as if the very thought were sacrilege. They soon, however, squatted down again beside the wall, while we wandered down the little alleys, under queer arches, past the carpenter-shops where the mechanics held boards between their legs, and reduced them to their proper shape by draw-shaves drawn towards them in the most nonsensical manner possible. Why could not some Yankee infuse a little practical sense and a few decent mechanical appliances among such benighted people? Supposedly because they will not give up their old ways, and are terribly suspicious of any new innovations.

These ideas were the more impressed upon us by the experiment of endeavoring to get a box to pack a lot of articles bought in Tangiers. A carpenter was introduced, who for the remarkably small (?) sum of five dollars made two boxes, taking a day's time to do it. His method was somewhat peculiar. He took the long guns, piled them up with the other articles, and then measured the heap. To do this he got a string, found out the length of the box and chopped off a piece of string. Then the width, and cut off a corresponding piece, and yet with these unmistakable data he got the box double the size, so that it looked more like a coffin for a giant than a thin box for small articles.

Again, we desired to get some washing done. The boat sailed in two days. No clothes appeared on that day, so, determined to go at any rate, we ordered the clothes clean or dirty, wet or dry, and by means of a few Spanish-Mooresque-American cuss-words, we at last got them half-dry and unironed. The trick became apparent when it was found that there were no more boats that week, and three or four days more would have been a small bonanza for hotel, guide, washerwoman and all combined.

On leaving Tangiers our baggage therefore had increased to two large boxes, a trunk and four bags, and it seemed quite a question how so much was to be gotten to the boat in time.

"How shall we get them there?" I asked Patecola.

"Never fear, *Señor*," he replied, "I will carry them for you!"

"That's all right, Patecola, but you can't carry all!"

"Oh yes, *Señor*," he replied, and suiting the action pulled out a large rope, tied the whole mass together and getting it hoisted on his back, ran the loop of the rope over his forehead under a wad of cloth, and away he started with the whole mass. He only smiled as he tramped along for full quarter of a mile down the hill and across the beach to the boat.

Faithful Patecola, a few *pesatas* had made him a good friend to us, and we parted with mutual regret. *A dios*, Patecola! *à dios!*

The entertainment of an Arabian night's dream had ended, and the blue hills of Africa soon became a thing of the dim distance, to be exchanged for the rugged heights of Gibraltar which loomed up before us after a four hours' sail. Charles A. Rich.

[To be continued.]

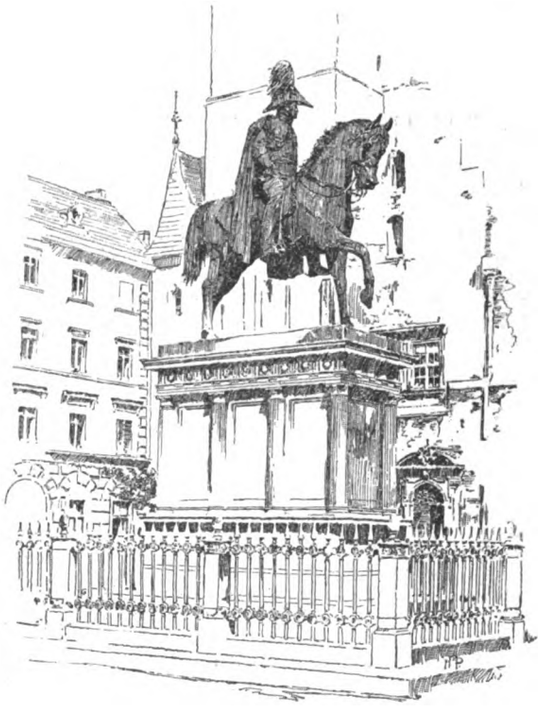
EQUESTRIAN MONUMENTS.[1] — XXXVIII.

THE OPPONENTS OF NAPOLEON.

A Design by Walter Crane.

AS Napoleon had ranged against him at one time or another nearly all the potentates of Europe, and as most of them had regularly constituted courts and fully officered armies, sculptors commissioned to honor some opponent of Napoleon's, had a much larger field to choose the subjects for their equestrian statues from, even if their names are less familiar to us than the names of Napoleon's marshals and generals.

Kings take the *pas* before all of meaner rank, and we find many monarchs of greater or less degree — who now were allies of the French Emperor and now were ranked with his foes — who have had equestrian statues created in their honor. First amongst these in the part he played, as well as in the



Frederick William III, Breslau. Kiss, Sculptor.

number of equestrian statues that honor him, is Frederick William III of Prussia, husband of the beautiful and beloved Queen Louisa, master of the persistent Blücher and friend of Humboldt. Five equestrian statues perpetuate his memory and of these the one which

[1] Continued from No. 800, page 59.

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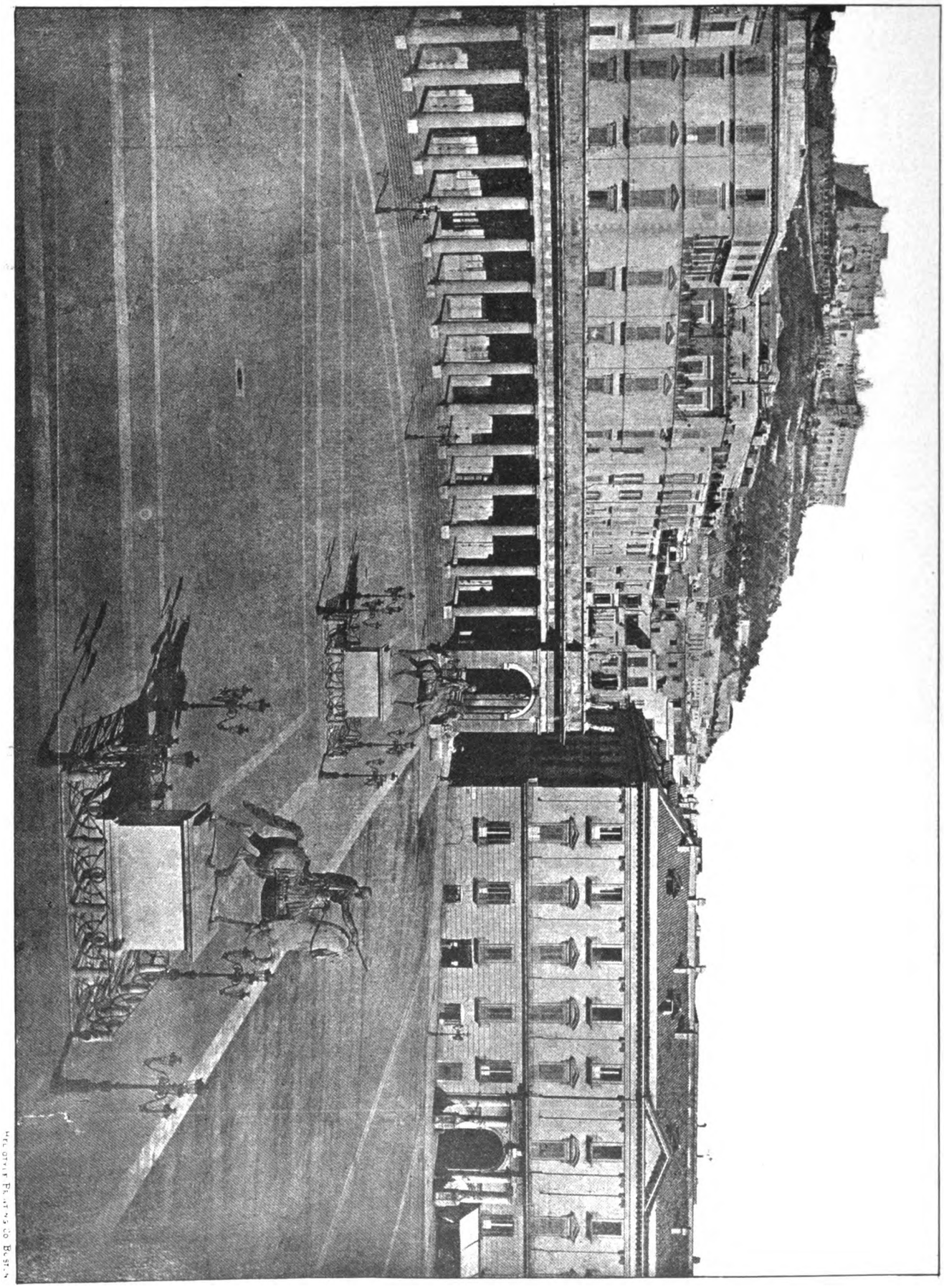

IN THE PLAZA LARGO, NAPLES; AND THE STATUES OF CHARLES III AND FERDINAND IV.

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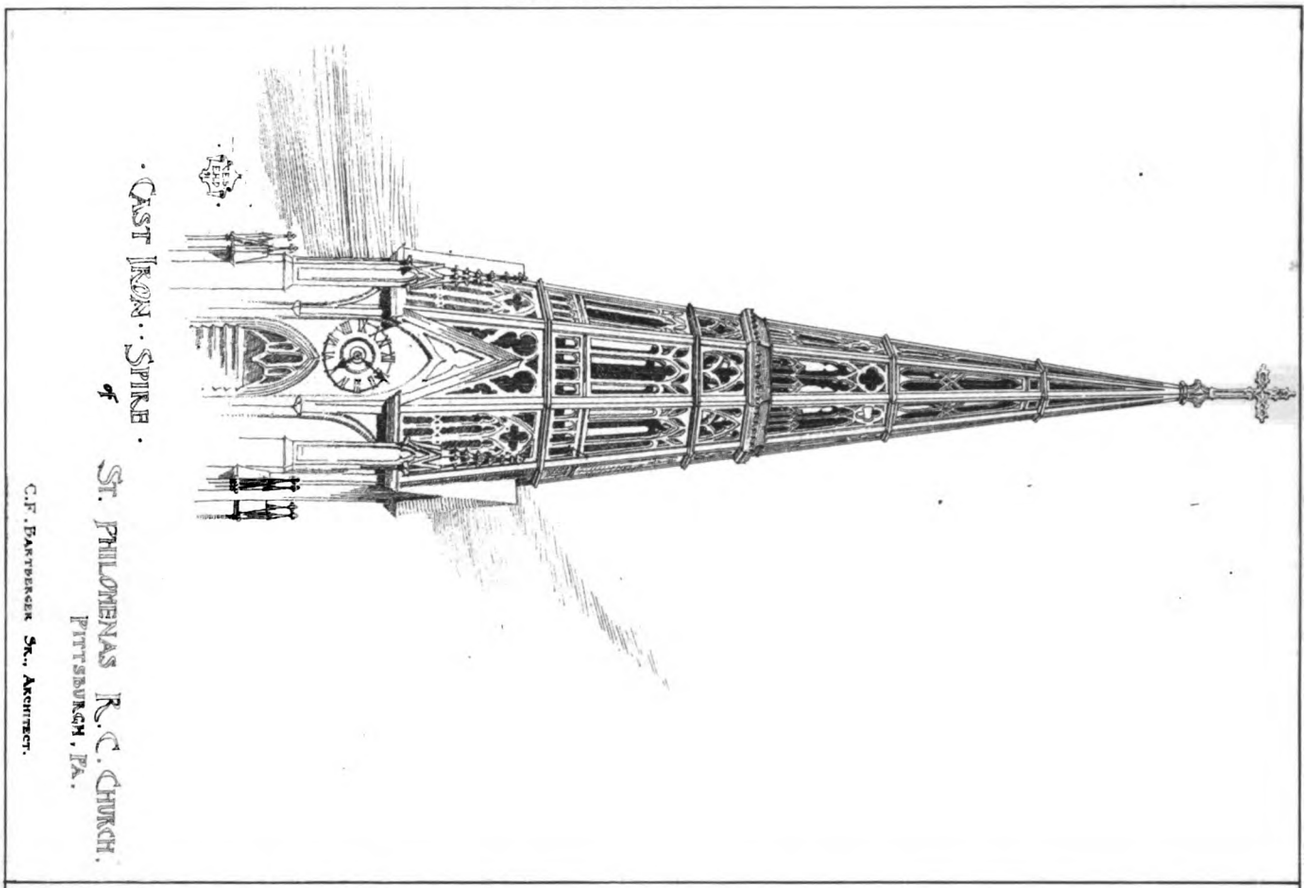
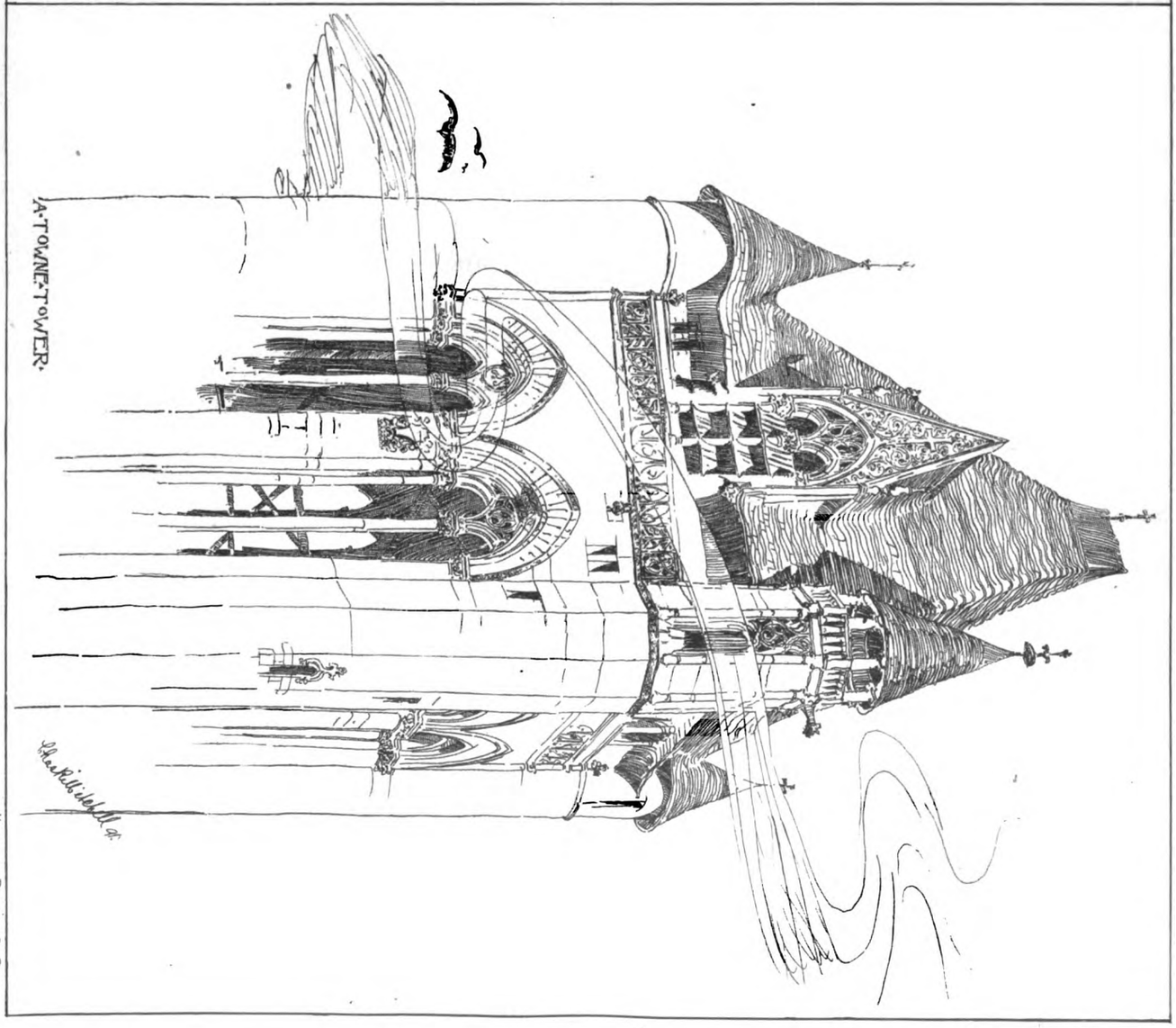


Cast Iron Spire of St. Philomenas R. C. Church. Pittsburgh, Pa.

C. F. Baetzberger Sc., Architect.



A. Towne Tower.

Heliotype Printing Co. Boston

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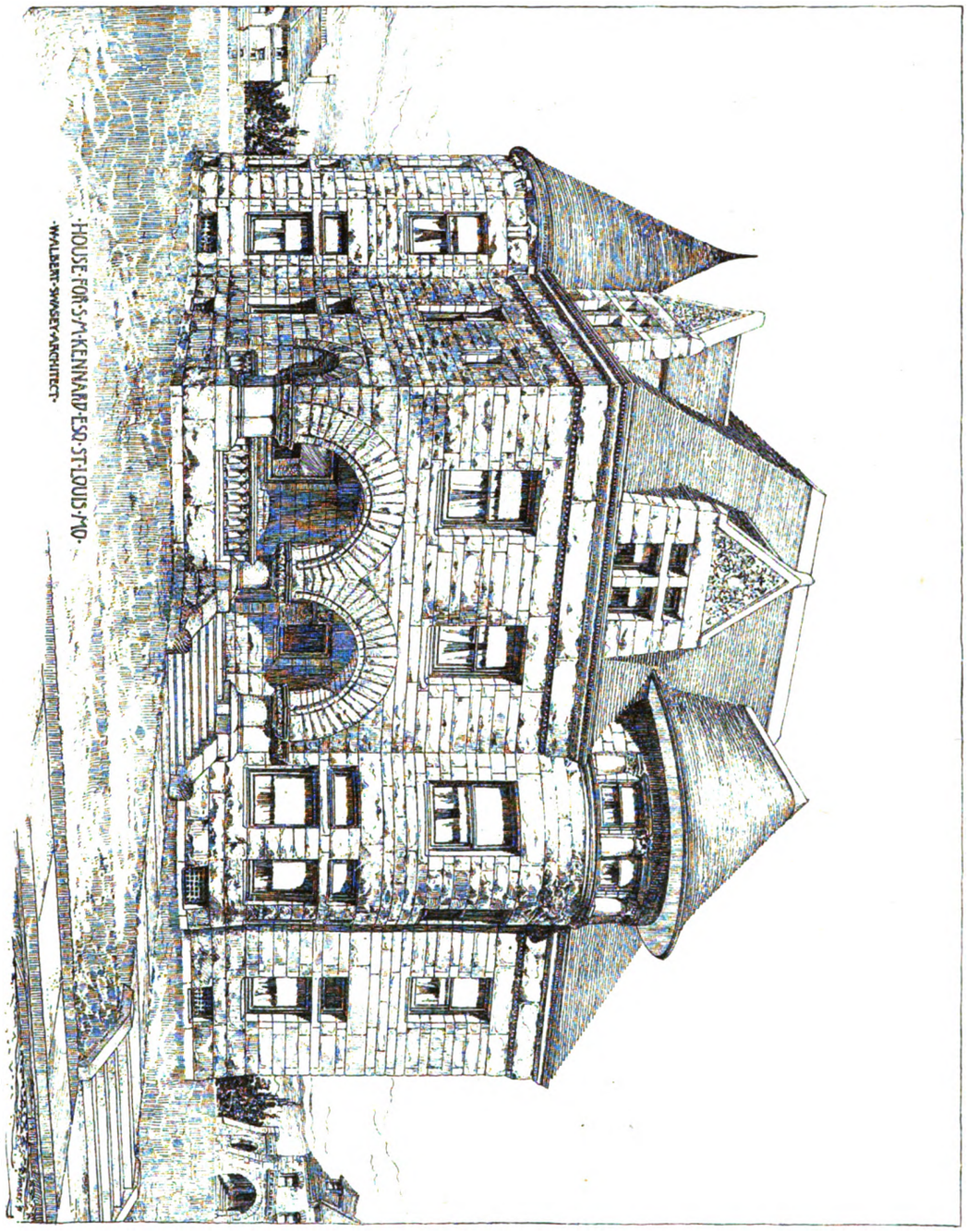

HOUSE FOR S. M. KENNARD, ESQ. ST. LOUIS, MO.

WALBERT SWASEY, ARCHITECT.

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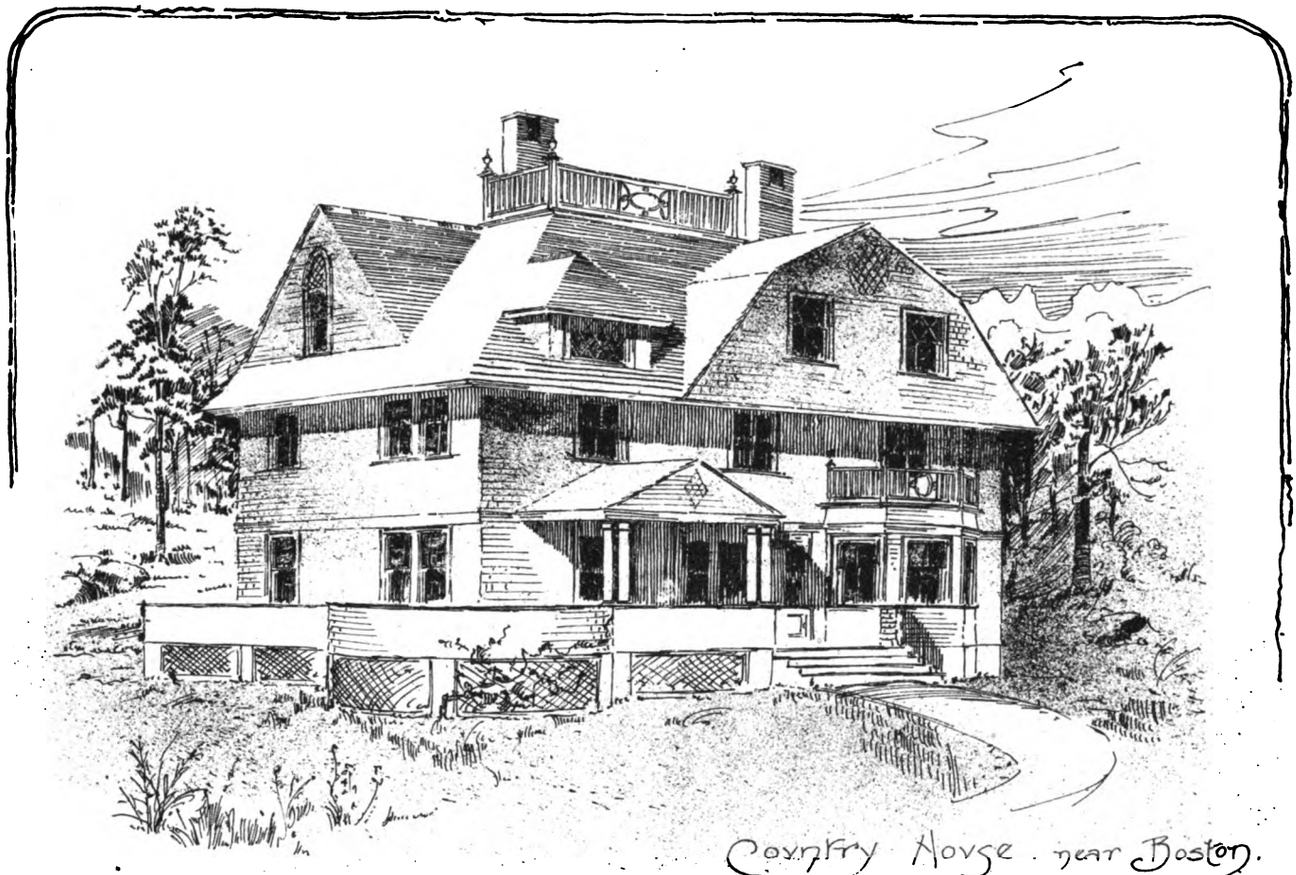
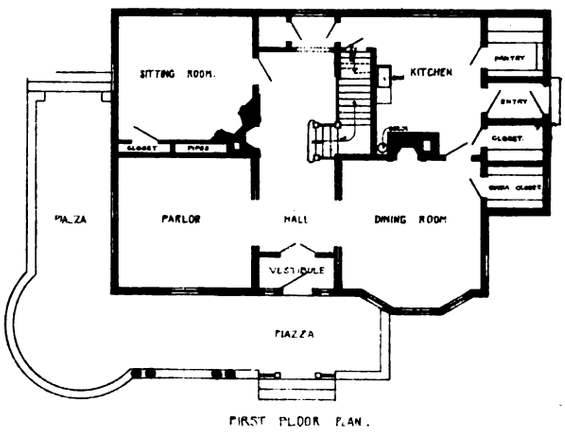


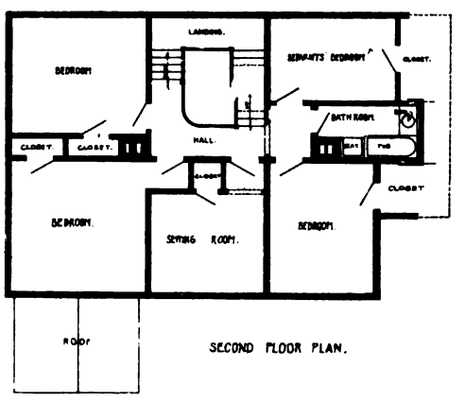
Country House. near Boston.

Jan. 1890.

Parker and Mears. Arch'ts.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

PLANS FOR A HOUSE TO COST ABOUT $8000.

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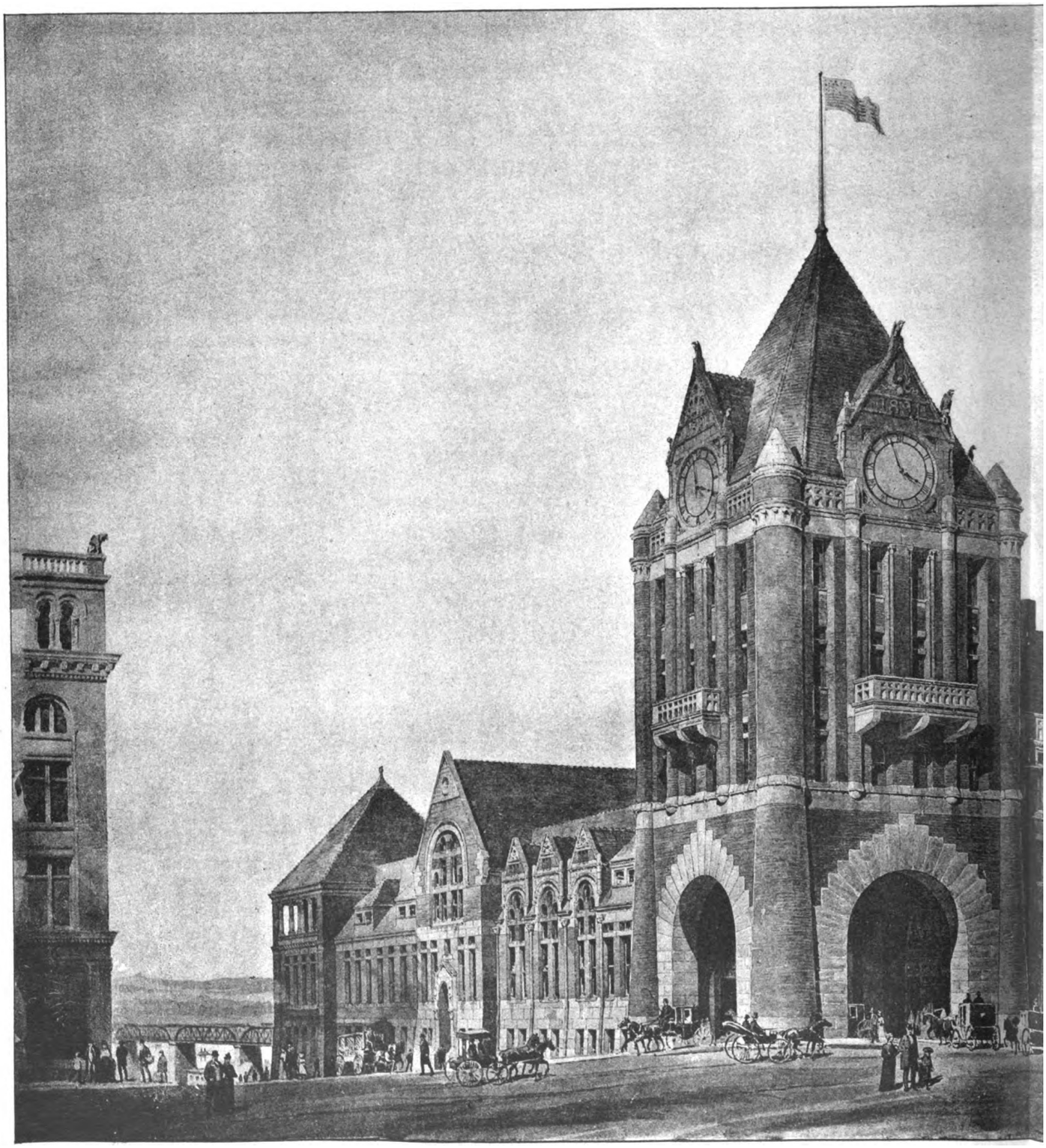

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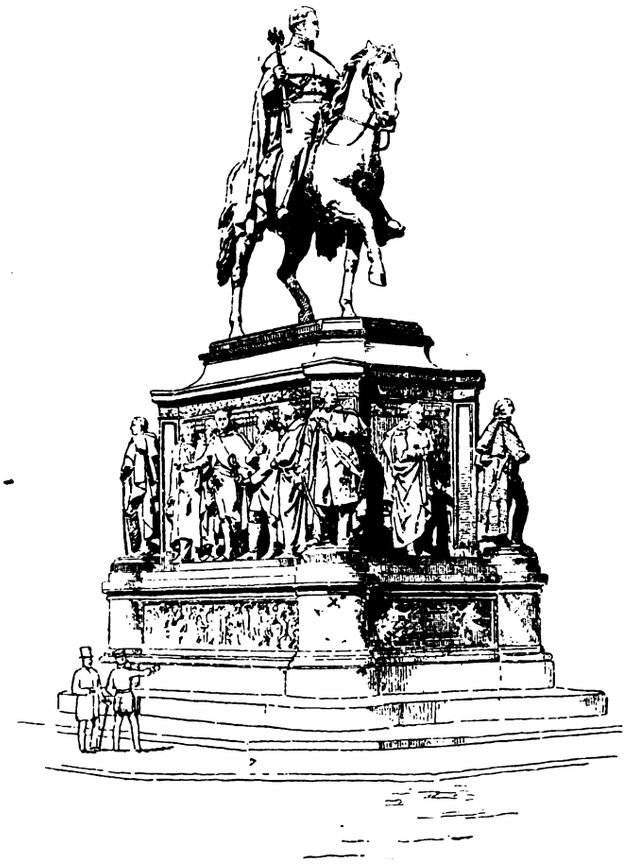
is the largest, most ambitious and least artistic is the one by Bläser, Calandrelli and Schievelbein set up in 1878 at Cologne. This is one of the largest of its kind, being twenty-two feet high and weighing 76,670 pounds, while its cost was $112,500; the people of the



Frederick William III, Cologne. Blaser, Calandrelli and Schievelbein, Sculptors.

Rhenish Provinces contributing this sum in a great popular subscription. About the pedestal are grouped Schievelbein's bronze

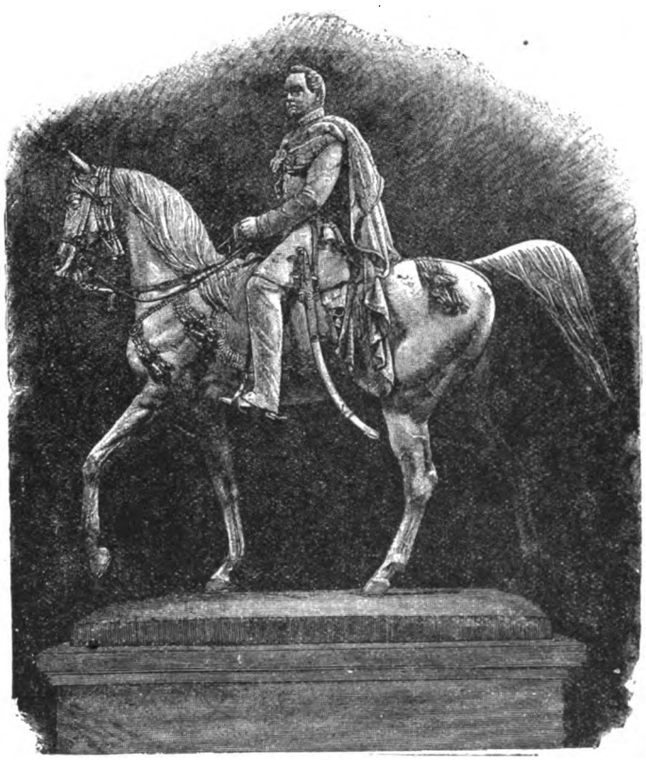
William I of Wurtemberg, Cannstadt. Halbig, Sculptor.

figures in the round, nine feet high, representing Blücher, Kleist, Bülow Hardenberg, Arndt, the Humboldts, Niehber and others. Many of these figures are modelled in an interesting way, but nothing can mitigate the falsity of conception and the intense awkwardness of the equestrian group itself. So bad is it that we ought to be grateful that the four supporting equestrian figures which, as in the case of the monument of Frederick the Great at Berlin, were to adorn the pedestal were, for some reason, never executed.

The almost equally large group by A. Wolff, in the Lustgarten at Berlin, is in no degree superior to the one at Cologne, and has similar

Frederick William III, Berlin. Wolff, Sculptor.

faults. In this case the, too-large figures about the base are semi-nude allegorical individuals so conspicuous as to attract attention



William I of Wurtemberg, Stuttgart. Hofer, Sculptor.

from the surmounting figure of the king. Neither of these large and complicated compositions is as pleasing as the simple group at Breslau

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by Kiss, who also has equestrian statues of the same sovereign at Potsdam and Königsberg.

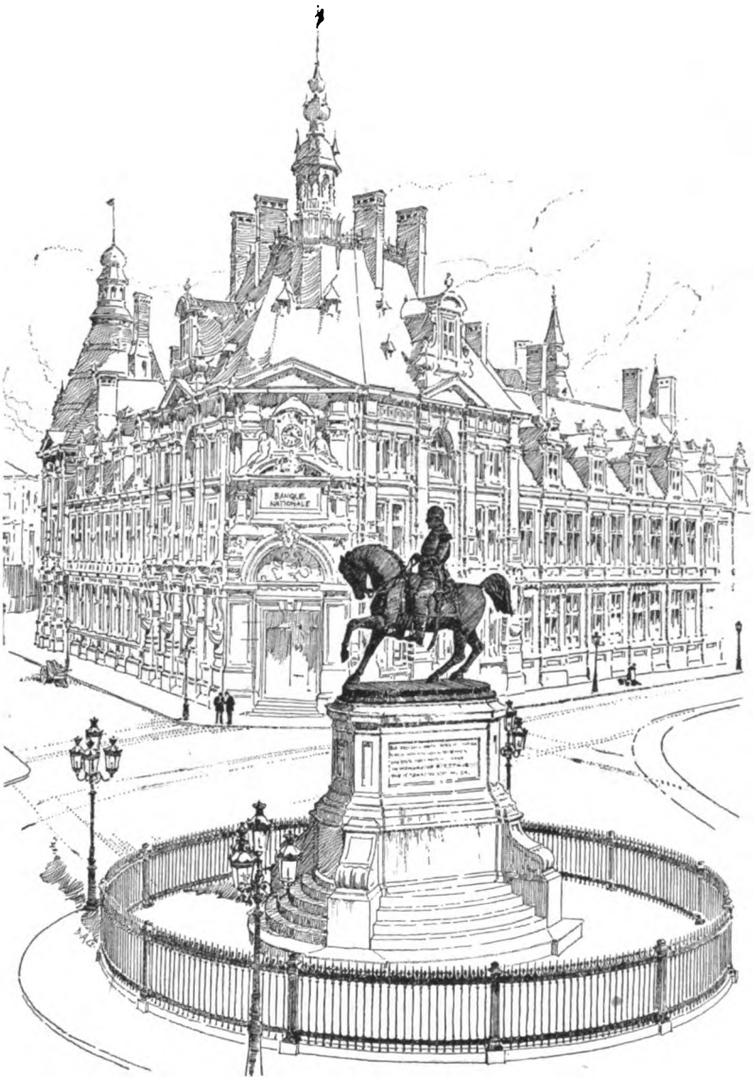
Of William I, King of Wurtemberg, who as a young prince led Napoleon's Wurtemberg allies on the march to Moscow but subsequently joined the Allies, there is an equestrian statue by Halbig at Cannstadt erected in 1875 and another at Stuttgart by Hofer.

The equestrian statues of George III and George IV of England have already been discussed[1], but the fifth son of George III, who was a marshal in the English army, and as such took part in the Napoleonic wars, became King of Hanover under the style of Ernst August in 1837, on the accession of Victoria to the throne of England which was at that time divorced from its German apanage because the Salic law forbade that a woman should rule the land. Of this rather insignificant personage there is at Hanover an equestrian statue by A. Wolff, erected in 1861.

Still another equestrian statue is erected to the glory of a small German potentate whose claim to remembrance rests less on his military renown than upon the way he befriended Goethe and the other men who made the court of Weimar, the literary centre of an epoch-making school of writers. In honor of this prince, Karl August, Grand-duke of Saxe-Weimar, an equestrian statue by Domdorf was erected in 1875.

Of the Emperor Alexander there are no known equestrian statues, but as that great country is largely *terra incognita* there may be several, for though the average civilization of the country is not much above the grade of semi-barbarism, there are in Russia many valuable collections of art, not a few artists and sculptors of ability and a very wealthy class of art amateurs, and where such conditions prevail, it would be strange indeed if no equestrian statue of Alexander had an existence in any town of Russia.

Of the Emperor Francis, the statue at Prague already mentioned[2] is the only one which has received equestrian treatment, if one of the bas-reliefs on the side of the tower of the Vienna city-hall is excepted.



Leopold I, Antwerp, Belgium. Geefs, Sculptor.

Gen. Ponsonby, St. Paul's Cathedral. Baily, Sculptor.

The unfortunate Ferdinand IV, King of Naples, husband of one of the misfortune-bringing daughters of Maria Theresa, is represented by an equestrian statue, after the Classic manner, at Naples, where it forms the companion statue of the Charles III once intended to be a Napoleon Bonaparte. The horse which bears Ferdinand, like the entire group which represent the mounted Charles III, is the work of Canova, but the figure of the king was modelled by an Italian sculptor named Cocli.

Of the Spanish monarchs who opposed Napoleon, Charles IV and Ferdinand VII, there are no equestrian statues, but the Netherlanders who once suffered under the cruel tyranny of Spanish masters erected in 1884 at Luxemburg an equestrian statue[3] of their king, William II, who, as a young man, took an active and prominent part in the final overthrow of Napoleon; for, after serving as aide-de-camp to Wellington in the Peninsular campaign, he commanded the Dutch forces at the battle of Quatre Bras, June 16, 1815, and was wounded at the battle of Waterloo two days later. The statue is the work of the French sculptors, Mercié and Peter, the latter modelling the horse.

The ruler of the other portion of the Low Countries, Leopold I, is represented by a bronze equestrian statue at Antwerp, near the Port de Malines, which was erected in 1868. This group was modelled by the sculptor Joseph Geefs.

From these brief statements it will be seen that nearly all the potentates who, at one time or another, ranked themselves in opposition to Napoleon's schemes of aggrandizement, have had equestrian statues consecrated to their memories, and as many of them were men of considerable individuality of character and not a few of them actually served in arms against the Corsican, their statues have a greater interest than if they were merely conventional statues of royal personages which had been erected as a mere visible chronicling of the passage of time by noting in this way the death of one king and the accession of another. If, though physically widely separated, these statues be considered as a group they will be found historically interesting, while, when their sculptural merits are considered, not one of them will be found to pass beyond the bounds of respectable mediocrity.

Ernst August, Hanover. Wolff, Sculptor.

[1] See *American Architect* for November 22, 1890.
[2] See *American Architect* for June 22, 1889.
[3] See *American Architect* for Feb. 28, 1885.

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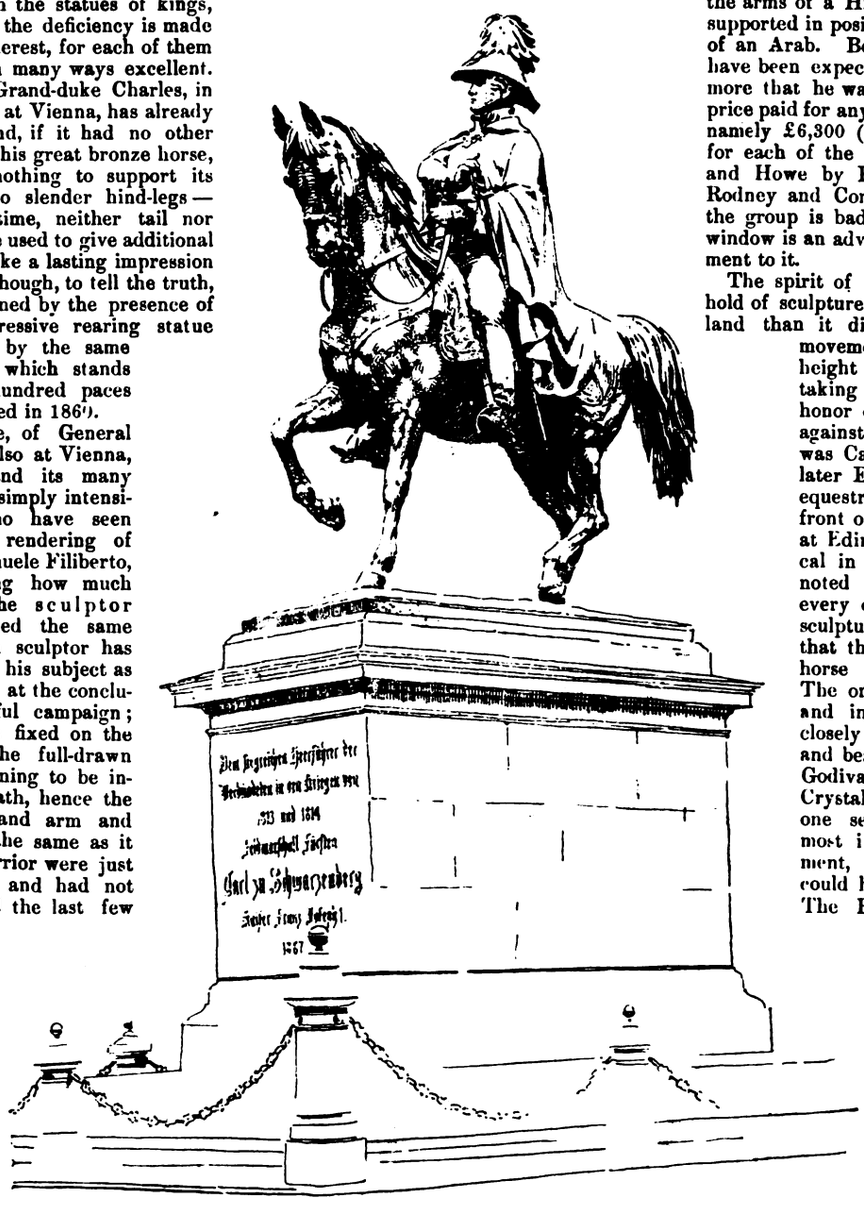
Perhaps if the writer's boyish sympathies had not been excited to partisanship by the brilliant achievements of Napoleon and his generals, the names of the many able generals of different nationalities, who defeated or were defeated by the French, would be as familiar to him as are the names of French leaders, and he would now find greater cause to wonder that posterity, if not their contemporaries, had not set up a greater number of equestrian statues in their honor. Doubtless many have been honored with pedestrian statues, but only two Continental generals have been found who have served as models for equestrian portraits and these two are Austrians. But, if in comparison with the statues of kings, the number is small, the deficiency is made up in quality and interest, for each of them is impressive and in many ways excellent. The statue of the Grand-duke Charles, in the outer Burgplatz, at Vienna, has already been illustrated[1] and, if it had no other merit, the sight of this great bronze horse, rearing aloft with nothing to support its great mass but two slender hind-legs — for, for the first time, neither tail nor trampled soldiers are used to give additional support — would make a lasting impression on the beholder; although, to tell the truth, the feeling is weakened by the presence of the still more impressive rearing statue of Prince Eugene, by the same sculptor, Fernkorn, which stands over against it a hundred paces away. It was erected in 1865.

The other statue, of General Schwarzenberg, is also at Vienna, erected in 1867, and its many intrinsic merits are simply intensified, for those who have seen Marochetti's florid rendering of the statue of Emmanuele Filiberto, at Turin, by noting how much more artistically the sculptor Hahnel has treated the same incident. Each sculptor has chosen to represent his subject as sheathing his sword at the conclusion of his successful campaign; but Marochetti has fixed on the moment when the full-drawn sword is just beginning to be inserted into the sheath, hence the attitude of hand and arm and sword is precisely the same as it would be if the warrior were just drawing his sword and had not yet disentangled the last few inches of the blade from the scabbard.

Hahnel, on the other hand, shows the action nearly finished, only the last two or three inches of the blade remain unsheathed, and these the rider is forcing home with the gentle pressure of two fingers, half unconscious of his action and already turning his attention to other things. The result is that the statue has a quiet dignity which is wholly wanting in the one at Turin.



General Schwarzenberg, Vienna. Hahnel, Sculptor.

Amongst the statues of opponents of Napoleon must not be forgotten one of the three equestrian statues that have found a home in Africa. History knows Mehemet Ali as the man who, by his atrocious massacre of the Mamelukes, brought a condition of peace and quiet to Egypt which has lasted to our day, rather than as a brilliant leader of a portion of the Turkish army, which finally made it desirable for the youthful General Bonaparte to withdraw from Egypt. The statue of this leader (after his elevation to the pashalik) stands at Alexandria and is interesting because the sculptor Jacquemart shows not only a turbanned Turk on horseback, but a man riding as a Turk rides — with short stirrups, knees forward and legs sloping sharply back from the knees.

England showed more generosity than the Continental nations in creating equestrian monuments to leaders in the Napoleonic wars, and did not confine her efforts to complimenting royalty. In St. Paul's itself are two very interesting monuments, both of white marble and slightly more than life-size. One, in the north transept, honors the memory and services of Major-General, the Honorable Sir William Ponsonby, killed by French lancers at the battle of Waterloo, because he had the misfortune to have his horse killed under him during the charge. This allegorical group conceived in Classic vein was designed by Mr. Theed, and was executed by the sculptor, E. H. Baily. The cost of the group, £3,150, was defrayed from the public funds.

Against the west wall of the south transept is an even larger group, supported on either hand by Egyptian sphinxes, which represents the death of Lieutenant-General Sir Ralph Abercromby, the commander-in-chief of the English expedition against the French in Egypt. The group shows the general falling from his rearing horse into the arms of a Highlander, the horse being supported in position by the prostrate body of an Arab. Better work than this might have been expected from Westmacott, the more that he was paid for it the highest price paid for any statuary in the cathedral, namely £6,300 (the same sum being paid for each of the two monuments to Nelson and Howe by Flaxman, and the two to Rodney and Cornwallis by Rossi). That the group is badly placed beneath a large window is an advantage rather than detriment to it.

The spirit of Classicism took a firmer hold of sculpture and architecture in Scotland than it did in England and the movement was about at its height at the time people were taking steps to erect statues in honor of those who had served against Napoleon. One of these was Campbell's Sir John Hope, later Earl of Hopetoun, and his equestrian statue, erected in front of the Royal Bank in 1835 at Edinburgh, is markedly Classical in treatment. As will be noted this statue differs from every other piece of equestrian sculpture we have encountered, in that the earl stands beside his horse instead of bestriding it. The only one that parallels it — and in action it does so very closely — is C. B. Birch's poetic and beautiful model of a "Lady Godiva," now on loan to the Crystal Palace at Sydenham; in one sense this latter group is most intensely modern in treatment, yet in another sense it could hardly be more Classical. The Hopetoun statue, on the other hand has nothing to recommend it, save its Classicism.

In the strongest opposition to the statue at Edinburgh is the equestrian figure of the Marquis of Londonderry, the half-brother to his predecessor in the Marquisate, the famous Castlereagh, who took so important a part in the Irish troubles and brought about the present dependency of Ireland upon England. The subject of the statue was a soldier from his early youth, serving in the Netherlands, in Ireland, in the Peninsula under Wellington and in the final campaign that ended at Waterloo. During this time, too, he served on several important occasions as member of some diplomatic commission, being one of the five British plenipotentiaries at the Congress of Vienna in 1815. As he was a soldier, and moreover a cavalry leader, his statue could hardly have been other than an equestrian one, and as Monti represents him in the market-place at Durham clothed in the rather fantastic but graceful uniform of the hussars, it is probable that the statue, erected in 1861, represents him at the time when, under Sir John Moore in Portugal, his brigade of hussars skilfully covered the retreat of the British army to Corunna. Apart from its being a presumably faithful representation of the uniform of the period the statue, though it does not lack for animation, is not a particularly interesting one; it is immensely superior, however, to Marochetti's equestrian statue of Stapleton Cotton, Viscount Combermere, who also served with Wellington in Spain. If ever an uninteresting statue was placed upon as stupid a pedestal as it deserved, this statue, which has stood before the Castle gate at Chester since 1865, is that one.

[1] See *American Architect* for August 2, 1890.

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FREDERICK WILLIAM III. — Frederick William III, King of Prussia, was born in August, 1770, and succeeded to the throne in 1797. In November, 1805, he formed a secret alliance with Russia and the other powers, but a few days after the battle of Austerlitz he made a treaty of peace with Napoleon, by which Hanover was given to Prussia in exchange for Anspach, Cleves and Neufchâtel. This caused a declaration of war from England against Prussia, and the alliance of Frederick William with Napoleon was broken. The Prussians were defeated at Jena and Auerstadt in October, 1806, and, a few days after, Napoleon entered

Sir John Hope, Edinburgh. Campbell, Sculptor.

Berlin. The treaty of Tilsit ended the war in July, 1807, and the Prussian monarch lost by this compact about half of his kingdom. In 1812 he was called on to furnish a large force to aid the French in the invasion of Russia, but in March, 1813, he summoned his subjects to the war of liberation. After proving his courage in several battles, he entered Paris with the Allies in 1814. At the Congress of Vienna he recovered nearly all his lost provinces, and acquired half of Saxony. He died in June, 1840.

BLÄSER. — Gustav Bläser was born at Dusseldorf in 1813, and became a pupil of Rauch. His works include a group of "Minerva leading a Young Man to Battle," on the Castle Bridge at Berlin; the Francke monument at Magdeburg; a statue of Duke Albert for Marienburg; several statues of Frederick William IV for different places; and the equestrian statue of Frederick William III at Cologne, which was completed after Bläser's death by Calandrelli. He also executed a statue of "Hospitality" and a group entitled "Janus," and many portrait-busts. Bläser died in 1874.

WOLFF. — Albert Wolff, the son of an architect, was born at Neustrelitz in 1814, and studied under Rauch and in Italy. His works include a group, "The Departure for the Fight," on the Castle Bridge at Berlin; the equestrian statue of Ernest Augustus at Hanover; the equestrian statue of Frederick William III at Berlin; statues of Galileo and others for the University at Pesth; a statue of Frederick William III at Königsberg; colossal statues of the Four Evangelists for the church of the Castle of Neustrelitz; statues of the Grand Duke Frederick Francis at Ludwigslust, and of the Grand Duke of Mecklenburg-Strelitz at Neustrelitz, many busts and the famous "Lion Combat" on the steps of the old Museum at Berlin.

ERNST AUGUST. — Ernst August, King of Hanover, born in 1771, was a younger son of George III of England. He was styled Duke of Cumberland before his accession to the throne, and was a field-marshal in the British army. He succeeded to the throne of Hanover on the death of William IV in 1837, and died in 1851.

WILLIAM OF WURTEMBERG. — William I, King of Wurtemberg, was a son of Frederick I, and was born in 1781. He marched with his father, Frederick I, with the army of Wurtembergers which the King furnished to Napoleon in his campaign against Russia. He came to the throne in 1816, and granted a new constitution in 1819, making further concessions in 1843, which were, however, rescinded later. William died in 1864.

HALBIG. — Johann Halbig was born at Donnersdorf in 1814, and was a pupil of Schwanthaler. His chief works are "Atlas," in the Museum of St. Petersburg; eighteen colossal figures, representing the principal provinces of Germany, on the Hall of Liberation at Kelheim, at which place are also his statues of Louis I of Bavaria and Maximilian II; a monument to Maximilian II at Lindau; the statues of Fraunhofer, Schelling and General Deroy at Munich, and a "Christ on the Cross" in the Campo Santo of that city; a statue of the Palatine Joseph at Pesth; and an equestrian statue of William of Wurtemberg at Cannstadt. He also made the group of the Crucifixion at Oberammergau, a group of "Young Girls at the Bath" and a "Bacchante on a Tiger." Halbig died in 1882.

LEOPOLD I. — Leopold I, King of Belgium, Duke of Saxony and Prince of Saxe-Coburg-Gotha, was born at Coburg in 1790. His youth was chiefly spent in the Russian military service; he commanded a battalion at Lützen, Bautzen and Leipsic, entered Paris with the allied sovereigns, and accompanied them to England. In 1830 he declined the crown of Greece, but in June, 1831, was elected to the throne of Belgium. Leopold died in 1865, after a reign which was marked by liberality and a strict regard for constitutional rights.

GEEFS. — Joseph Germain Geefs was born at Antwerp in 1808, and studied in his native city and in Rome. His works include the equestrian statue of Leopold I at Antwerp; a statue of Baldwin of Constantinople and one of Vesalius; "The Arts, Sciences and Letters rendering Homage to Charles von Hultheim," and "Adonis going to the Chase." He also executed the Van Hogendorp statue at Rotterdam; the statue of "Antwerp" for the façade of the theatre in that city; and the group of "Holland and Adolphus of Nassau," erected on the battlefield of Heiligerlee. Geefs died in 1885.

FERDINAND IV. — Ferdinand IV, King of Naples, afterwards called Ferdinand I of the United Kingdoms of the Two Sicilies, was born in 1751, and was a younger son of Charles III of Spain. He began to reign when but eight years old, the Marquis Tanucci being made regent and then prime minister. In 1792 the court of Naples joined the Allies against France, but four years later purchased a peace from the French Directory. In 1798 it formed a secret alliance with Russia, Austria and England, and the Neapolitan army marched against the French, who defeated them in 1798. The King fled to Sicily, but the successes of the Allies in 1799 restored him to power. He made a treaty of peace with France in 1801, but in 1805 entered another secret alliance. Napoleon then declared the Bourbon dynasty in Naples at an end, and made Murat sovereign of that kingdom. Ferdinand retired again to Sicily, where he was protected by the British until the overthrow of Napoleon. In 1814 he was restored to the throne of Naples, and in 1816 united the kingdoms of Naples and Sicily under one government. He died in 1825.

CHARLES III. — Charles III, King of Spain, was born in 1716. His father, Philip V, ceded to him the crown of the Two Sicilies in 1734. He ascended the throne of Spain in 1759, and became the ally of France in the war with England in 1762. He declared war against England in 1779. He died in 1788, after a reign in which he had instituted many reforms among his people.

CANOVA. — Antonio Canova was born in 1757 near Possagno, Italy, and was the only son of a poor stone-cutter. Through the kindness of a noble Venetian family, he was enabled to study in Venice, and in 1780 he went to Rome, where he spent the rest of his life, winning extraordinary fame and honors. His principal works are the monuments to the Archduchess Maria Christina of Austria at Vienna, to Popes Clement XIII and Clement XIV in St. Peter's, and to the family of the Stuarts in the same church; "Theseus conquering the Minotaur"; "Perseus and Medusa"; "Cupid and Psyche"; "Venus Victrix," "Hebe," and statues of Pius VI, Napoleon, Maria Louisa, Letizia, the mother of Napoleon, and Washington. He also executed the equestrian statue of Charles III at Naples, and the horse for the equestrian statue of Ferdinand I, the figure of which was added after Canova's death by the sculptor Cocli. Canova died at Venice in 1822, and was buried at Possagno.

SCHWARZENBERG. — Karl Philipp, Prince von Schwarzenberg, an Austrian general, was born at Vienna in 1771. He served against France in the campaigns of 1794 and 1799, and was at Hohenlinden, where he succeeded in saving his own corps. In 1808 he was sent as ambassador to St. Petersburg, in 1810 became general of the Austrian cavalry, and after the peace of Vienna was appointed to negotiate the marriage of Napoleon with Maria Louisa. On the alliance of Austria with France, he was placed by Napoleon at the head of the Austrian forces in the Russian campaign of 1812, and was made field-marshal. In 1813 he was given the command of the allied armies, and, after defeating the French at Leipsic, advanced to Paris. After Waterloo, he was made President of the Imperial Council of War. He died in 1820.

HAHNEL. — Ernst Julius Hähnel was born at Dresden in 1811, and at first studied architecture, but afterwards took lessons in sculpture of Rietschel and Schwanthaler. His most notable productions are the reliefs on the theatre at Dresden; the statue of Beethoven at Bonn; one of Charles VI at Prague; one of the composer Weber at Dresden; a colossal statue of Cornelius; a statue of Körner at Dresden; one of Frederick Augustus II at Dresden, and the equestrian statue of Schwarzenberg at Vienna. Hähnel is professor in the Academy of Fine Arts at Dresden.

PONSONBY. — Sir William Ponsonby, an English general, was born in 1782. He was an aide-de-camp of Wellington, and closed a brilliant military career by a glorious death at the battle of Waterloo, where he commanded a brigade of cavalry, June 18, 1815.

BAILY. — Edward Hodges Baily was born in Bristol in 1788, and studied under Flaxman and at the Royal Academy. His chief ideal works are "Eve," "The Graces," "Apollo discharging his Arrows," "Preparing for the Bath" and "The Sleeping Nymph." He also executed the statue of Nelson on the top of the Trafalgar Square column; the monument to General Ponsonby in St. Paul's Cathedral; statues of Fox and Mansfield in St. Stephen's Hall, Westminster; statues of Sir Robert Peel and Earl Grey, and many other portrait statues and busts of distinguished Englishmen. Baily was elected a Royal Academician in 1821. He died in 1867.

HOPE. — Sir John Hope, afterwards fourth earl of Hopetoun, was born near Linlithgow in 1766. He entered the army at sixteen, became a lieutenant-colonel in 1793, was at the battle of Alexandria in 1801, and in the same year negotiated the convention for the surrender of Cairo. He was made lieutenant-general in 1808. He served with distinction in the Peninsular War, taking the chief command after the death of Sir John Moore at Corunna, where Hope commanded the left wing of the British army. He died at Paris in 1823.

CAMPBELL. — Thomas Campbell was born in Edinburgh in 1790, and studied at the Royal Academy and in Rome. His works include the equestrian statue of Sir John Hope in Edinburgh; the monument to the Duchess of Buccleuch at Boughton; statues of Queen Victoria at Windsor Castle; of Wellington at Dalkeith Palace; of the Princess Pauline Borghese at Chatsworth; of Earl Grey at Howick; of the Duke of York at Edinburgh; of the Duke of Gordon at Aberdeen; of Mrs. Siddons in Westminster Abbey; of Bentinck in Cavendish Square, London, and the monument to Sir William Hoste in St. Paul's. Among his ideal sculptures are "Psyche," "Ganymede" and "Cupid instructed by Venus to assume the form of Ascanius." Campbell died in London in 1858.

MARQUIS OF LONDONDERRY. — Charles William Stewart, third Marquis of Londonderry, was born in Dublin in 1778, and was a half-brother of Lord Castlereagh. He entered the army in 1793, became a colonel in 1803, and distinguished himself in Portugal under Sir John Moore. He served as adjutant-general under Sir Arthur Wellesley for several years in the Peninsula. In 1813 he was made envoy extraordinary to the court of Berlin, and much importance is ascribed to the efforts by which he induced Bernadotte to coöperate with the Allies at Leipsic. He was made a general in 1837, and died in 1854.

MONTI. — Raffaele Monti was born at Milan in 1818, and studied under his father, who was a sculptor of repute. He gained much fame for his early works of "Alexander taming Bucephalus" and "Ajax defending the Body of Patroclus." In 1847 he went to England, and spent the remainder of his life in that

The Marquis of Londonderry, Durham. Monti, Sculptor.

country. His statue of the "Veiled Vestal," exhibited at the great exhibition of 1851, was bought by the Duke of Devonshire, and is Monti's best-known work. His sculptures include the equestrian statue of the Marquis of Londonderry at Durham and many ideal works, among which may be mentioned "Italy," "Eve," "The Sister Anglers," "Truth" and six colossal symbolic figures of nations on the upper garden terrace of the Crystal Palace. Monti died in London in 1881.

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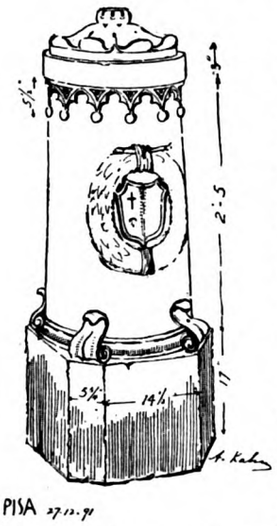
SKETCHES OF BRITISH INDIA.



IT is a remarkable fact, that, although India has been the hunting-ground of the British Empire for so many years, and in spite of the color and general picturesqueness of its inhabitants, it has, up to the present time, been avoided by all our artists. Amateurs, military, civilian and feminine, have, it is true, tried their hands at sketching with the sort of success which attends those who have worked little at drawing, and studied art not at all; but of pictures above the level of those sold at Mr. Whiteley's and at other universal providers, for 25 shillings per pair, framed, one has seen but few; and oddly enough, the few have not been the work of Englishmen, Irishmen, or Scotchmen. The finest examples of Indo-European art, were the works of the Russian painter Verestschagin — huge, monstrous canvases, loaded with paint and revelling in sunshine; and now we have on view in Bond Street, at Messrs. Dowdeswell's galleries, some little wee works, a few inches square, by another non-Britisher, Mortimer Menpes, a native of Adelaide, Australia. Mr. Menpes cannot be said to be equal to Verestschagin in his effects of sunlight, white and glaring, or in his Taj Mahal, which he has painted as did the Russian artist, with a glowing evening sky behind it. Nor are his white marble mosques or palaces to be compared with M. Verestschagin's in brilliancy and heat; but his water-colors, his etchings and his pencil-drawings are exceedingly clever. M. Menpes is not at his best in oil painting and that is possibly why these Indian sketches are not so good as his Japanese ones exhibited in the same gallery some time ago, for, if I remember aright, most of the latter were in water-colors. Indeed, such is the heaviness of some of the oil studies, so *culottés* are they, that one wonders if they were done here in London, during the winter, under the fog and smoke laden sky. They have not the effect of having been done *en plein air*, spontaneously,— and another error, is the Japanese framing. Strange and rather ugly toned gold and silver fluted mounts may have suited the Japanese pictures, they were so brilliant and gorgeous in color in themselves; but why have framed India in the like? I know it is the idea of harmonizing picture and mount, but contrast is as much a law to be observed in art, as harmony; and certainly many of these sketches would look ten times as brilliant with white or gold margins.

Amongst the most satisfactory of the sketches, are those of Benares, "The Argonauts of the sun," a crowd of turbanned men in a boat; "Under an indolent sky," people under umbrellas upon the steps going down to the river; and two or three others. A little gem from Burma, a girl looking into the fire, surrounded by various pots and pans, is entitled "A voice from the darkness." Indeed, most of the names are as fantastic as the frames, and appear to have very little bearing upon the picture.

"After the dance (Cashmere)," is a wonderful piece of painting. A woman with a gold head-dress, jewelled, a red robe and a gray veil, smokes a long hookah, while we examine the wondrous painting of some pearls. I remember, upon some occasion, many years ago, Mr. Ruskin drawing attention to the painting of the pearls on the Queen's neck, in the "Alexander and Darius" picture by Paolo Veronese in the National Gallery; a little gray, a streak of dark and a sparkle of gray — that is the recipe and a pearl is the result. But in this picture of Menpes's, the dark streak is left out, with no loss to the whole; the pearls have that opaque, opalesque gray hue which they have in nature when seen upon a dark skin or robe. The jewelled head-dress blazes with color, the sparkle of gold, and the shimmering of the pendants which move with the action of the head. This is all excellent technique and makes one wish Mr. Menpes would keep to the figure when he handles the oil palette, for in some of the landscapes, his substances are woolly, as, for example, "In an idle street (Jeypore)."

People say these Indian sketches are superior to the Japanese ones, they are "pushed farther." But is the essence of all good painting to push it as far as possible? Is finish always the height of the artist's ambition? Surely not. Is not the aim of art rather, to get the effect with as little (seeming) labor as possible? Is not Velasquez the greatest painter the world has yet known (greatest, because his figures are the most living), simply *because* his work is of all men's the least labored? To know what to do, and to do it with the least possible labor, is certainly the way to get a picture to live; and, in landscape art, to get atmosphere. Herein are the secrets of impressionism, and Mr. Menpes is at his best when he is the most impressionist. Constable was essentially an impressionist, and the more he finished, the less good was his work. Was not Whistler right when he replied to the judge's question as to whether £200 was not a large sum for a day or two's work? "No, I ask £200 for the labor of a life." But finish will always carry the day with the ignorant public, as their imagination is too limp to allow them to reckon-in the years of apparently unproductive study which are necessary before an artist can knock off a landscape in a day, or a surgeon can perform an operation in a few minutes. Doubtless a couple of guineas is a large sum for feeling your pulse and writing a prescription; but the physician also, has passed years of his life in study and, as regards fees, semi-starvation. With a certain amount of plodding any one can make a tolerably good "finished" picture; but to knock off a sketch which suggests much in a few touches, or to paint a portrait in a couple of sittings without a needless stroke of the brush, or one which does not express a thought, can only be done by a master after many years of study.

The sketches in diamond point upon ivory, claimed by Mr. Menpes to be his own invention, are charming as a new art (or rather the revival of an old one), which might be applied to many artistic purposes.

S. BEALE.

CLOCKS OF ALL TIMES.

ONE of the oldest clocks of any pretension extant is the one contained in the north transept of Wells Cathedral, said to have been constructed by Peter Lightfoot, a monk, in 1340. The clock was originally in the Abbey Church at Worcester, but was removed to Wells at the time of the dissolution of the monasteries in the reign of Henry VIII. The dial is over six feet in diameter, and is divided into twenty-four hours. Beyond showing the days of the month, the various phases of the sun and moon are also indicated. Above the clock is a turret, in which figures of eight mounted knights are made to turn and tilt. Two figures connected with the clock, clad in armor, strike the hours and quarters, one chiming two small bells with its feet and the other striking a larger bell with a battle-axe to denote the hours. Although the works had to be replaced in 1835, the ancient dial and figures still remain and perform the functions which have belonged to them for close on 500 years. The astronomical clock at Strasburg Cathedral has a world-wide reputation, and is undoubtedly the most marvellously perfect piece of mechanism. The clock is dated 1574, though itself a copy from a clock that stood on the same site, constructed in 1370. An entire book has been devoted to the description of its working and the multitude of movement shown, which, briefly narrated, include the motions of the heavens, the sun and moon, the rising and falling of the stars, the day of the week for the current year, the year of the world, the circle of the sun, the leap years and the movable feasts. At the quarter hours emblematical figures are set in motion, symbolical of the course of nature. Many clocks modelled on similar lines exist, and are to be met with all over the civilized world.

Returning to our own country, the present Royal Exchange clock is but a remnant of departed glory. In bygone days it was recognized as the model timekeeper of the City, and its chimes were remarkable for their melody. Now, alas, it appears frequently either in advance of or behind the times, and its chimes no longer give pleasure to the musician. It is related that when the Royal Exchange was burnt in 1838, the clock-tower alone escaping complete destruction, the last air played by the chimes, ere the flames silenced them, was the eminently appropriate one of "There's nae luck about the house." At that time the chimes played at three, six, nine and twelve, with a different tune for each week-day and a psalm for Sunday. For general reliability the handsome clock at Westminister Palace bears the palm in the present day. The four discs are twenty-two feet in diameter, and there is no other clock in the world, with four dials of so large a size carrying minute hands. It takes two men two hours a week to wind it, and so accurate are its movements that, notwithstanding all atmospheric changes, it scarcely ever varies a second a month. The great bell on which the hour is struck is known as "Big Ben," and weighs thirteen tons.

Since the beginning of the eighteenth century the St. Paul's clock has been one of the sights of London, not to be neglected by those indefatigable country trippers who generally manage in one short week to more completely explore the metropolis than a born Cockney finds time to do during the whole course of his life. Except for minor alterations, this clock remains as a monument to the skill of Langley Bradley, its maker, who finished it about 1710. Its two dials — one facing down Ludgate-hill and the other looking towards the south side of St. Paul's Cathedral — are formed by black rings painted on the stonework, on which the hour circles and the numerals are engraved and gilt. Each dial is a trifle over seventeen feet in diameter. The hour-bell is six feet, nine and one-half inches in diameter at the mouth, and weighs five tons, four hundred-weight. In addition to its primal duty this bell is tolled when the Sovereign,

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the Bishop of London, the Dean of St. Paul's, or the Lord Mayor of London passes away. There is in the clock-tower a much larger bell, "Great Paul," which is the largest bell mounted for swinging in Europe. It weighs sixteen tons, fourteen hundred-weight, but has no connection with the clock, though it is tolled daily for five minutes prior to afternoon service. For many years the clock-winder at St. Paul's charged a fee of twopence each visitor for the privilege of seeing the clock, and it is said that during the year of the great exhibition he netted as much as £1,000 from this source. Shortly after, the Dean and Chapter included the clock in their official scale of charges, till the dynamite scare of a few years ago, when this portion of the building was closed to visitors, and it still remains so.

Very fine collections of clocks are to be seen in the South Kensington Museum, and in an annex to the Guildhall Library, where the valuable collections of the Clockmaker's Company are stored. Her Majesty also possesses a large number of antique clocks with historical associations.

Among recent advances towards the perfection of horological instruments many contributions have been made by Messrs. Kendal and Dent, whose large clock at the Inventions Exhibition of 1885, with but one pair of hands for showing the time under the old twelve hour system, and also with the proposed twenty-four hour notation, attracted considerable attention. At the same exhibition they showed a double-dial watch of clever design, the details of which have already been given in *Invention*, as well as "touch," or blind men's, watches on a novel principle. More recently, they have turned their attention to providing the mariner with an improved method of winding marine chronometers, the illustrations of which our readers are also familiar with. — *Invention.*

SOCIETIES

NEW YORK CHAPTER, A. I. A.

AN adjourned meeting was held at its office, 18 Broadway, New York City, on Wednesday, April 22, 1891, at 3 P. M., President Upjohn in the chair.

The minutes of the March meeting were read and adopted.

Action in reference to the late Mr. O. P. Hatfield took precedence of routine business.

The Secretary said he had issued notices to all the Chapter members of Mr. Hatfield's decease the day after its occurrence, no information being obtainable before then as to the arrangements for his funeral services, which took place at his house in West Twenty-fourth Street on Monday morning, April 20, the interment being in his native town of Elizabeth, N. J.

The Secretary then offered the following preamble and resolutions, which were unanimously adopted:

"*Whereas*, There departed this life, on the 17th ult., Mr. O. P. Hatfield, a Practising Member of this Chapter, and the architect, in his own behalf, of many private structures, and, jointly with his brother, the late Mr. R. G. Hatfield, of a number of important public buildings, including some of those for the Department of Charities and Corrections on Randall's Island, the Court-house at White Plains, N. Y., the City and Seaman's Savings Bank in Wall Street, as well as the assistant of his brother in the computations for his notable volume on '*Transverse Strains*'; therefore

"*Resolved*, That the New York Chapter, A. I. A., in learning of his decease, so shortly after that of President Littell, does so with a sentiment of deep regret that still another void should be left in the roll of the original members of the Chapter, as also in that of the Institute, and feels it may safely aver, in his honor, that in the thirty-four years since he signed the Institute's original Constitution and By-Laws, he never consciously swerved from the principles therein laid down for the guidance of practitioners in their associative and personal relations; but, on the contrary, conspicuously, but with habitual modesty and discretion, exemplified them in his professional career.

"*Resolved*, That this minute be spread on the records of this Chapter, and that a copy thereof be forwarded to his nephew, Mr. R. F. Hatfield, for the information of his relatives and friends."

The Secretary reported that the Executive Committee, after consulting their credentials, nominated to the Chapter the following candidates for Practising Membership: Thomas Hastings, of the firm of Carrère & Hastings, of New York, proposed by Mr. Carrère; R. H. Hunt, of New York, proposed by Mr. R. M. Hunt; C. Powell Karr, of New York, proposed by Mr. E. H. Kendall.

The above candidates were then balloted for and unanimously elected:

The Secretary read a letter from Mrs. Emlen T. Littell, of March 22, 1891, and moved the following preamble and resolutions, which were unanimously adopted:

"*Whereas*, The widow of our late esteemed and beloved President, Mr. Emlen Trenchard Littell, in continuation of her husband's gift, more than twenty years ago, to the Chapter Library of a complete copy of "*Canina*" in sixteen large and highly-illustrated folio volumes, half-bound in vellum, has presented this Chapter with part of his library, consisting of standard illustrated architectural works, nearly all bound volumes in large quarto and folio, with a few unbound volumes and portfolios of loose sheets, or about fifty pieces in all, together with a bookcase to contain the same; therefore

"*Resolved*, That this Chapter gratefully accepts Mrs. Littell's munificent gift, and recognizes in it the final manifestation, through her, of that fraternal liberality which animated her husband's professional career, as well as her own sympathy with his long-continued, faithful service, through this Chapter, the Willard Architectural Commission and the Institute, to his art and his profession, which service, moreover, will be indefinitely prolonged, even after he rests from his labors, by this contribution to the edification of students in architecture; be it

"*Resolved*, That the Secretary and Librarian be instructed to have a plate placed on the bookcase, engraved with an inscription stating the fact in brief, and in such words as may be acceptable to Mrs. Littell; and

"*Resolved*, That this preamble and these resolutions be spread on the minutes of this Chapter, and that an engrossed copy thereof be presented to Mrs. Littell."

A circular-letter from the President and Secretary of a society representing the employing plasterers of New York was, on motion of the Secretary, referred to Messrs. Kendall, Jas. E. Ware and Holly.

The Secretary presented a pamphlet covering the recently issued new By-Laws and Code of Ethics of the St. Louis Chapter, A. I. A., and stated that, in acknowledging it, he had expressed his regret at missing from the list of its members the names of a number of St. Louis practitioners most familiar to the profession outside of that city, as the profession cannot command the weight and influence it otherwise would, in the eyes of the public, until it shows a united front; and that he had added that, if the Chapter Code of Ethics should be completely lived up to, a great desideratum would be met; also, that some of its ordinances might be regarded as quite experimental, and, at the next Convention of the Institute, he should, therefore, look with interest to see whether its report should indicate an accomplished or a probable success in squaring the real or supposed exigencies of associative effort and individual practice to statutory regulations.

A. J. Bloor,
Secretary.

ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

HOUSE OF CALDERON CARLISLE, ESQ., 1722 I STREET, WASHINGTON, D. C. MR. J. G. HILL, ARCHITECT, WASHINGTON, D. C.

[Gelatine Print issued with the Imperial and International Editions only.]

GRAND CENTRAL DEPOT, KANSAS CITY, MO. MESSRS. JAMES & JAMES, ARCHITECTS, KANSAS CITY, MO.

THE PLAZA LARGO, NAPLES, AND THE STATUES OF FERDINAND IV AND CHARLES III.

See article on "Equestrian Monuments," elsewhere in this issue.

A COUNTRY HOUSE NEAR BOSTON, MASS. MESSRS. PARKER & MEARS, ARCHITECTS, BOSTON, MASS.

The accompanying sketch is for a $8,000 country-house. It is shingled on walls and roof, and the interior is finished in hard woods. On the first floor there are dining-room, sitting-room, parlor, staircase, hall, kitchen, pantry, china-closets and closets. On second floor there are four bedrooms, bath-room, linen-closet and staircase. The attic has two bedrooms.

CAST-IRON SPIRE OF ST. PHILOMENA'S R. C. CHURCH, PITTSBURGH, PA. MR. C. F. BARTBERGER, ARCHITECT.

Height of the pyramid, 81′; height of knob and cross, 11′; distance from ground to bed-plate of pyramid, 138′; total height, 230′.

SKETCH FOR A TOWNE TOWER BY MR. C. R. MITCHELL, SAN FRANCISCO, CAL.

HOUSE FOR S. M. KENNARD, ESQ., ST. LOUIS, MO. MR. W. ALBERT SWASEY, ARCHITECT, ST. LOUIS, MO.

[Additional Illustrations in the International Edition.]

ENTRANCE TO THE WILLIAMS BUILDING, OMAHA, NEB. MR. I. HODGSON, JR., ARCHITECT, OMAHA, NEB.

[Grano-chrome.]

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MAGDALEN COLLEGE, OXFORD, ENG. MESSRS. G. F. BODLEY AND T. GARNER, ARCHITECTS.

UPON the plate this building is, by a printer's error, located at Cambridge.

ST. WILFRED'S, HICKLETON, ENG. MESSRS. G. F. BODLEY AND T. GARNER, ARCHITECTS.

PROPOSED SCREEN, STIRLING HIGH SCHOOL. THE LATE J. M. MACLAREN, ARCHITECT.

MAUSOLEE DE ST. REMY, TARASCON. SKETCHED BY MR. R. NEEDHAM WILSON, ARCHITECT.

THE NEW RAADZAAL, BLOEMFONTEIN, ORANGE FREE STATE, SOUTH AFRICA. MESSRS. CANNING & GOAD, ARCHITECTS.

THE plans which we publish to-day for this building are the outcome of an international competition organized in 1883 by the Government of the Orange Free State, when invitations were issued in the home and colonial papers for designs for a presidential residence and a Volkstraadzaal (House of Deputies). About fifty designs were sent in response, including several from well-known architects in Great Britain, Holland, Austria, Germany and America. Premiums amounting to 200 guineas were offered, and a strong committee was formed, with a professional coadjutor in the person of the then Commissioner of Public Works to adjudicate upon the plans.

The designs submitted under the motto, "Wijsheid, Kracht und Schoenheid" (wisdom, strength and beauty) were found, though not the most elaborate, the most suitable both on the score of cost, climate and the materials available on the spot, and the whole of the premiums were awarded to these plans.

The construction of the Presidency was undertaken in 1884, Mr. William Royce, of Queenstown, Cape Colony, being the contractor, but owing to the great depression in trade which prevailed at that time, the original design was considerably curtailed, the Government having reduced the original vote by one-third. During 1885 the building was completed and occupied by the late Sir John Brand, President of the Republic, towards the end of the year. For several years past the revenue of the Free State has increased by leaps and bounds, and it was very largely augmented during the gold craze of 1888–90 in the Transvaal. This expansion placed the Government in a position to expend large sums upon public works, and to proceed with the Raadzaal or Parliament House. The Government, mindful of their former restrictive policy, set aside a substantial sum for the structure, and it was furthermore resolved to confirm the competition committee's choice, and erect the building from the design accepted in 1883, prepared by Messrs. Lennox Canning & Goad.

The structure is not designed for the location of any of the public offices, these being housed in another older building hard by, but the Government have had in view the contingency of Bloemfontein, from its geographical situation, becoming eventually the capital of the United South African States, a contingency which is very strongly supported in many quarters (especially in Bloemfontein), and have had the building planned to meet the needs of a much larger assembly than that which is likely under the present régime to legislate within its walls. Among the provisions made in the plans, however, are a members' parlor or billiard-room; a smoking-room with lavatory attached; a large secretary's office or council-room, with strong-room for the State archives; president's private office and anteroom; two committee-rooms. In the hall a gallery is provided to face the daïs provided for the president, chairman and secretary. The seating for the members (about 70) is arranged in horseshoe form, each deputy having a separate desk, and there is seating accommodation for the public besides. The building is constructed of brickwork, the dressings being in stone obtained from local sources. The roofs are covered (for the want of a better material) with corrugated iron, the flats and gutters with zinc, and the dome with zinc tiles. Stone steps are provided to the approaches, and the porticos, colonnades and corridors are laid with tile and marble pavements. An experiment is being made to substitute plaster ceilings in place of the usual inartistic boarding, and the main floors will be covered with parquetry.

The whole of the decorative fittings are being prepared in England, and suitable models are being sent out for the stone-carvings.

THE WEEMS ELECTRIC RAILROAD. — The success attained with the Weems electric railroad, on a somewhat imperfect experimental track with a small car, has led to the formation of plans for a larger road, supplied with an electric locomotive and cars of sufficient size to carry passengers. Mr. O. T. Crosby, the consulting electrician, who has prepared the plans, believes that with a properly constructed track and a locomotive of sufficient size a speed of 150 miles an hour can be reached without difficulty. The experiments made with the small car on the Weems system seem to mark this as the most promising plan for fast travel on an electric road yet brought forward. The speed attained is limited by the defects of the track used, but it is said to have reached 115 miles an hour. — *Railroad and Engineering Journal.*

COMMUNICATIONS

[The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.]

A CURIOUS Pparty-WALL QUESTION.

CHICAGO, ILL., 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — A party recently purchased a residence (built nearly twenty years ago) with a party-wall on one side, and desires to pull this house down and put up in its place another building. Upon re-surveying the premises it appears that the centre of existing party-wall is some four inches over on this individual's property.

Will the owner of adjoining building (who happens also to be a new purchaser) be forced to permit the taking-down of this party-wall so as to set it correctly upon the line, and if so is he legally obliged to bear any portion of the expense? Or has the acceptance of the wall by previous owners for so many years given him a right to the wall as it now stands? INQUIRER.

[IT is very probable that the second survey is inaccurate. Our experience is that the lines of city lots given by surveyors rarely agree, although four inches is an unusually large discrepancy. If it should be proved that the wall was four inches over the correct line, it would depend upon various considerations, such as the interpretation of the deeds, the stipulations in the original party-wall agreement, the provisions of the statues and city ordinances in regard to party-walls, and so on, whether an innocent purchaser could be compelled to pay for pulling down and rebuilding the wall. It is quite possible that he might be made to pay a fair price for the strip of land, four inches wide, of which he enjoyed the unauthorized use; but an attempt to use an innocent mistake as a pretext for making him, at great loss to himself, pay part of the cost of a different sort of wall, built solely for some one else's benefit, would be likely to fail. The question is not whether the adverse and unnoticed possession of the land, for so many years, supposing the new survey to be correct, has given the present proprietor a good title to it, as a title could hardly be acquired by such means; but how, supposing one party to be wronged, the wrong can be righted with the least injury to the innocent trespasser, and the courts will see that the latter is not made the victim of oppression. If the case is a real one, the most sensible course for the parties would be for the one who is enjoying the use of a portion of his neighbor's land, which he has not paid for, to pay for it now, and get a clear title to it; and for the other to line up the wall on his own side to the required thickness. — EDS. AMERICAN ARCHITECT.]

THE PROPOSED PUBLIC BATHS IN NEW YORK.

NEW YORK, N. Y., May 13, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Noting your editorial remarks in the last issue of the *American Architect*, referring to the Public Baths now being built by Messrs. J. C. Cady & Co., permit us to state that the statements in your issue of April 25, were also correct.

We made sketches in consultation with Dr. Simon Baruch, for the shower-bathing houses last September, and prepared drawings to illustrate papers read by Dr. Baruch before the American Social Science Association and the Academy of Medicine of New York, as well as the Northwestern Medical and Surgical Society.

We are at present constructing some of these baths in the Demilt Dispensary of this city.

We desire to make this statement as we should certainly have disclaimed the credit you gave us of being the first in the field, if it were not our due.

Yours respectfully, BRUNNER & TRYON.

NOTES & CLIPPINGS

A REMARKABLE GAS EXPLOSION. — On February 15, there occurred at Glasgow, Scotland, one of the most remarkable explosions of gas upon record. The illuminating-gas plant of Glasgow is the property of the municipality, and comprises three different stations. The one in question, known as Dawsholm, is situated in a somewhat isolated position outside the town, and includes three gas-holders arranged in line, about twenty-five feet apart, but fortunately as it turns out, at some little distance from the rest of the buildings and plant. The three gas-holders are all similar in respect to diameter, being 160 feet across. Two of these have lately been enlarged by the addition of a third lift, which made them 90 feet in height, and equal to containing more than 1,500,000 cubic feet of gas each. The third remained a double lift, consequently about 60 feet high and holding something over 1,000,000 cubic feet of gas when full. At about 4 30 in the afternoon the outlet valve of No. 1 was open for the supply of the district, No. 2 shut off, and the inlet of No. 3 was open to receive the make of gas. The valve man opened the inlet of No. 2, with a view, apparently, of diverting the make from No. 3 At this time No. 1 was three parts or more full, No. 2 a little less, but sufficient to cup the lower lift, and No. 3 was not far from being full. Before the man could complete his purpose by closing No. 3 inlet, a large mass of flame was observed shooting high into the air, over the roof of No. 2, the centre holder. It was accompanied by a loud rumbling noise like the shock of an earthquake, together with a concussion that caused windows to rattle violently,

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and greatly alarmed the inhabitants of the neighboring part of the town. This appears to have been caused by the bursting of the roof of the gas-holder in all parts. It was quickly followed by the destruction, with a second concussion, of No. 1 holder, and in a few minutes the whole structure of both holders lay in a confused mass at the bottom of the tanks. Fortunately this was unattended with loss of life or serious injury. Workmen who happened to be in the vicinity were scorched, and some haystacks 100 yards off were set on fire; but the enormous volume of some 3,000,000 cubic feet of gas appears to have passed steadily up into the air, and burnt away as fast as it could meet with sufficient oxygen to support combustion. The whole affair was over in four or five minutes. The experts report that they are satisfied that the holders did not contain any explosive mixture, nor did they possess structural defects. But there were "indications of an explosive material having been placed on the crown of No. 2." The explosive power, striking inward, ruptured No. 2, and the concussion was considered sufficient to account for the damage to No. 1. The "indications" appear to be an irregular fracture, having the edges bent *inward*, and corroded as if by the action of chemicals. The corporation has offered a reward of £1,000 for the apprehension of the author of the catastrophe. — *Fire and Water.*

The Great Find in Egypt. — On February 6, a discovery was made in the necropolis of Thebes second only in importance to the discovery of the Royal mummies at Dehr-el-Bahari by M. Maspero, in 1881. About half a mile from Dehr-el-Bahari a pit has been found containing several hundred magnificent mummies. These, like the royal mummies, had evidently been removed from the tombs and concealed in this receptacle, as a precaution, by the servants of the priests, probably at the same time and for the same reasons which caused the royal mummies to be placed in the receptacle where they were found by M. Maspero. This removal is believed by M. Maspero to have taken place in the reign of Aauputh, son of Shasang, of the Twenty-second Dynasty, (*circa* 966 B. C.). The coffins hitherto found all belong to the Twenty-first Dynasty, and are those of the priests of Ra-Amun and their families. The pit is about forty-five feet in depth, at the bottom of which are two corridors filled with coffins and treasures of every description. In the lower corridor — which as yet has only been explored — it is computed that there are some 200 coffins, and the second corridor is believed to be not less extensive. The shaft is forty-five feet deep, its mouth is about twelve feet in diameter, and its sides are of rough limestone. One of M. Grébaut's native assistants, who was superintending the work of hauling up the mummy-cases, told me that he had been the first actually to enter the corridor where the mummies and treasures lie. The shaft had then been excavated only as deep as the mouth of the corridor; and he crept in on his hands and knees, and stood in what he describes as being like a palace of enchantment. The corridor, he said, is some 10 or 12 feet high and 250 feet long. It runs in a northerly direction from the shaft toward the Theban hill. At the end there is a short corridor branching from it at right angles, and at some height above the floor at the end is the entrance to a second very long corridor, full of treasures, which has been sealed up for the present by M. Grébaut. Groups of mummies are placed at intervals in families. The number in each group varies from two to six or seven, father, mother, and children, and around them, exquisitely arranged, are vases, models of houses, models of *dahabiehs*, cases and boxes full of *ushabtis*, statuettes, and every conceivable treasure of ancient Egypt. Without even a speck of dust upon them, this profusion of treasures had remained unlooked at by any eye for nearly 3,000 years. He said that photographs had been taken of the place in its undisturbed state, which he declared to be that of a perfectly-kept and well-arranged museum. — *The Academy.*

Foundation-wells in India. — Piling for the foundation of buildings appears to be entirely unknown in Hindostan. The ordinary mode for securing a foundation, where the superstratum is tenacious and rests upon loose sand, is to dig a well until water is reached; a curb of timber is then placed, and upon it a cylinder of brick, 7 1-2 feet exterior and 3 1-2 feet interior diameter, is built to the height of 3 or 4 feet above the ground. As soon as the masonry has hardened sufficiently, the well-sinker fixes a plumb-line to the top of the cylinder as a guide, and descends withinside, carrying an instrument called a "phaora," or "mamooti," somewhat similar in shape to a hoe; with this he excavates the earth until the water is too deep; he then commences the use of the "jham," which resembles the "phaora" in shape, but is about 36 inches long and 27 inches wide, and is suspended to a cord passing over a pulley above the cylinder. Upon this instrument the well-sinker descends, and, diving into the water excavates with the "Jham" the soft earth under the sides of the curb, and is at intervals drawn up with the instrument. The cylinder descends gradually from 6 inches to 2 1-2 feet per day, as the earth is withdrawn from beneath it, and relays of workmen keep it constantly going, lest the sand should settle around and cause it to hang up. The natives are very expert in this operation, and not unfrequently remain under water more than a minute at a time. The cylinders have been sunk as deep as 40 feet, but with extreme labor. A series of these wells being sunk at intervals of 1 foot between them, they are filled with a grouting of lime and rubble-stone, and separately arched over; arches are then thrown transversely from the centre of each parallel pair, and another set of arches turned over the adjacent wells longitudinally; the whole is then covered with masonry, and the pier or other building raised upon it. Such foundations are found to answer perfectly in situations where almost any other kind would be washed away. — *The Architect.*

The Aluminium Processes. — There are now three separate and distinct processes for producing aluminium, each of which is successful in a commercial way, says an exchange in an article under the above caption. One is the electrical smelting-furnace process, another that of producing a chemical alloy within a water-jacketed furnace and a metal fume condenser, and the third, that known as the metal sodium retorting process. Each of these processes gives aluminium to the trade. With each process there is a possibility of vast improvement. With each experiments are being made, and the outlook is that, within a reasonably short period, the price of aluminium will be greatly reduced. It is more than possible that aluminium may very soon compete with iron, and that a revolution, which must be far-reaching, will ensue. It will effect every trade, every industry. It will be well for those connected with any business of importance to bear in mind and consider occasionally what the result will be to them personally of the advent of a white metal, non-corrosive, light almost as wood, strong as steel, and so abundant that it forms part of every clay bank. When it can be produced cheaply enough, remarks a contemporary, by some new process, it will effect a mechanical revolution in a thousand things. — *Invention.*

TRADE SURVEYS

That which worries the great bulk of business men, manufacturers and all others engaged in all channels of activity in the United States is the necessity for going slow. There is scarcely an industry in the country but what is, and has been, obliged for months to measure its activity by market conditions. It looks as though this necessity would continue indefinitely. Business men are trying to study out what is wrong, but there is no common conclusion. Years ago, the conclusion was that over-production was the cause, and the antidote was restriction. With the increasing capacity, production has been regulated, but there is not at this time anything that might be called an actual over-production. The textile manufacturers say that they are carrying less stocks than usual; in a general way this may be true, but in certain lines stocks are at their maximum. There is a considerable amount of unemployed textile manufacturing-capacity — how much it is impossible to say. Reports from numerous mills and from jobbing centres show that restriction is being curtailed, and that a vigorous effort is being made to keep stocks within certain well understood limits. There are few, if any, labor troubles in the mills. The equipments are all the very best. Textile manufacturers deserve credit for the improvements which they have made during the past two or three years. The manufacturers of textile machinery have not been busier for years, they say, and the imports of machinery for the production of certain lines of goods indicate very clearly that American manufacturers are marching forward in the direction of competing with foreign makers in many lines which heretofore have been purchased almost exclusively abroad. Private advices from quite a number of Southern cotton-goods centres show that vigorous efforts are being made now to increase capacity. The Southern mills are not only holding their own, but are leading Northern competition. The hosiery and knit-goods manufacturers have been obliged to slow up on account of a sudden falling off in demand, or a better way of stating the fact would be, on account of having overstocked the market. Still the hosiery manufacturers at Philadelphia, Cohoes and elsewhere all say that there will be a heavy fall and winter demand, and that there is very little danger of running stocks beyond a safe limit. The carpet manufacturers have done remarkably well, but still the capacity is a little beyond the country's requirements. Upholstery and all lines of hangings are selling remarkably well, and American manufacturers have very little to fear with the rank and file of buyers from foreign competition. The hardware manufacturers throughout New England have escaped the depression which has overcome certain other industries. In nearly all lines, a good demand has continued since the opening of the year. There is also a good demand for nearly all kinds of light machinery, or machinery, engines, boilers, etc., for shops of moderate capacity. In this line of industries there is no cause of complaint. Thousands of new shops are being equipped, and it is to be noted with satisfaction that all of the equipments are of the latest and most improved patterns and patents. Old machinery is being discarded for newer, and this is not a small item of cost in many large establishments. Machinery-makers say that the discarded machinery of recent years has amounted to a heavy loss to thousands of manufacturers who found it necessary to supplant the old with newer mechanical devices. In the paper trade, there is not such a rush of business as is frequently met with at this season of the year, but this is due in a measure to the fact that paper makers and sellers have been crowding the markets for some time, selling goods in advance and filling their orders with the utmost despatch. The furniture manufacturers, as a rule, are busy in all sections of the country; this is partly the result of extraordinary house-building for two or three years past. At Cincinnati and at some other furniture manufactories in the West there has been a genuine rush of orders, and the same is true of certain kindred industries concerned in the production of goods for finishing the interiors of houses. The carriage and wagon makers have had four or five months of activity, but the producing-capacity has been crowded with too much energy, and there are complaints of accumulating goods at many Western points. In the heavier industries, restriction seems to be the order of the day. The iron trade is under the necessity of running to about seventy-five per cent of capacity, in hundreds of instances at less. The lumber dealers and manufacturers feel the effects of over-activity last year, although there is not as yet any depression in prices. In the Northwest, the carried-over stocks of lumber are very small — smaller than a year ago. In all of the Southern States, lumber manufacturers are turning out about all the hard wood they can make. In certain sections of the South, thousands of recently arrived Italian laborers are seeking employment, and persons who are familiar with the distribution of this element state that in the interior of the country Southern Europe emigrants are crowding their way into all manner of employments heretofore monopolized by the north of Europe and British emigrants. There have been a few threatening labor disturbances and some few strikes throughout the interior of the country, but, considering the number of laborers engaged, the percentage of discontented laborers is trifling. The Connelsville strike is terminating almost every day, according to the views of newspaper correspondents, but the strikers claim to be in better fighting-trim than at the outset. The miners throughout the country, except in Iowa, are generally at work; the iron-workers in all sections of the country are plodding along quietly, and existing wages-schedules assure friendly relations for the rest of the year. Throughout the mining regions of the West labor is in demand, and mining operations of all kinds, with the exception of the ore regions of Lake Superior, are being pushed with usual earnestness.

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THE present indications are that it will not be possible for us to assist the Trustees of the Cathedral of St. John the Divine with the suggested "authoritative expression of professional opinion" upon the merits of the four designs submitted in the final competition, for the reason that but one architect has notified us of his opinion. Either the profession is diligently studying the designs published in our issue for May 9, with a view of expressing their opinions during the coming week, or, with the single exception referred to, do not feel enough interest in the scheme or in the tribulations of the Trustees to lend them a helping hand.

AS it is now about the height of the circular season, we hope that we may be pardoned for making some remarks in regard to the wastefulness and uselessness of the present methods of bringing building materials and processes to the attention of architects, which, if not new, are no less true for repetition. Probably few of the people who send circulars to architects have any idea of the number of other persons who are also doing the same thing. No doubt, many of the circulars are not only handsomely printed, but interesting, and we can remember the time when, having nothing else to do, we found pleasure and profit in reading them; but for architects who have other business to attend to, it is absolutely impossible, during the building season, to look over more than a small fraction of those received, and still more impossible to file them away so that they can be found again when occasion comes for making use of some of the articles mentioned in them. Moreover, even if the trouble of filing them is taken, it often happens that the article wanted, by the time that occasion arises for using it, is no longer manufactured, or is made by different parties, so that resort to the description in the circular leads to nothing but disappointment. To take, for example, the case of the "Fire on the Hearth" stoves. We know that other architects besides ourselves, when they were first made, very highly approved the principle of their construction, and took the first opportunity of trying them. Our first trial of them was made at our own expense, as we do not like to recommend anything to our clients on purely theoretical grounds, and was quite satisfactory, so that we felt ourselves quite justified in advising strongly their adoption for warming nurseries, small school-rooms and similar places, where the combination of radiation and an abundant supply of warm, fresh air was desirable. Unfortunately, architects do not have to recommend nursery-stoves every day, or even every month, and it soon became a good deal easier to recommend our favorite sort than to tell our clients where to get a specimen. At the address given in the circulars they were soon unknown, nor could any one at that address inform us where they were to be had. The directory was mute on the subject, and we found ourselves reduced to hunting for them among retail dealers, who occasionally possessed one or two of the stoves, which had apparently come into their hands as curiosities. In this way, by dint of a great deal of inquiring and walking about, we exhausted the available supply in the nearest city, and our next demand was satisfied by sending to a town sixteen miles away, where, as we learned after much questioning, a dealer had once been known to have had one. We secured our prize, and shortly afterward, by the merest accident, in looking for heating-apparatus of another kind, discovered the address of the firm that had succeeded to the manufacture of the object of our affection. Having thus spent so much labor in trying to buy the goods of a manufacturer who did not know how to sell them, we feel as if we had earned the right to give some hints, from the architect's point-of-view, to other manufacturers who make a good article, and wish architects to help them in bringing it into use.

IN the first place, let him who has a good building appliance to sell never send descriptive circulars to architects *unless they are asked for.* In most offices, at this season, the first work of the morning is to pitch the circulars, unopened, into the waste-basket. A good many of the class are cunningly disguised, and put in a sealed envelope like a letter, so that the person addressed will be sure to open them, but architects become pretty expert in detecting these shams without opening them, and, at most, they follow their brethren after a second's delay, and the time and expense laid out in their preparation and transmission, as well as in collecting and destroying them, is a dead loss to all parties. It may comfort the manufacturers of such articles to know that they are no worse off than other people in this respect. We have heard of a publisher, who wished to increase the circulation of an excellent magazine. He sent out sixty thousand circulars, containing deserved praises of it, and received in response four new subscriptions. He would probably have had that number of new subscriptions in any case during the time, so that the cost of his sixty thousand circulars was practically a total loss. In a similar way some of the great seedsmen and producing florists, who spend immense sums of money in catalogues, have recently been comparing the cost of their catalogues with the profits from the sales which they make to the new customers to whom they send them, and, although a florist's catalogue is as likely to be preserved and read by those who receive it as anything of the kind would be, the balance is often on the wrong side. The circulars sent to architects are perhaps more costly, as an average, than any others made, and the total sum laid out on them must be enormous, so that any economy that could be judiciously made would be desirable. Such an economy might be made, not only judiciously, but most advantageously, by keeping the circulars until wanted, and letting architects know, by standing advertisements in the professional journals, where to get them when they need them. The natural resort of every architect, if he has a greenhouse to build, or a hot-water apparatus to put in, or a theatre to decorate, is to look in his paper and see if there is not something new that will help him to make his work successful. If he finds something advertised that looks promising, he sends for further information, and it is then that a good circular becomes of use, while the advertiser, if he is enterprising, will send a salesman promptly to follow up the circular. We are convinced that this course would do more to facilitate the introduction of meritorious goods, and to enable architects to keep themselves familiar with improvements in building appliances than the dumping of a thousand tons of circulars a day into the mails, to be transmitted unopened, through the architects' offices, to the paper-mills. However, facts are better than theories, and it would, it seems to us, be a most profitable plan for the people who sell goods through architects to keep a comparative account of the sales made through a broadcast distribution of circulars, and through judicious advertising, with the cost of each, and let other people know the results.

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WE have been requested to call attention again to the International Congress of Hygiene which is to meet in London on August 10, next. The sixth Section, which is to consider Architecture in relation to Hygiene, meets in Burlington House, Piccadilly, on August 11, and will consider five special subjects, — the Laying out and Extension of Towns, including the control of the construction of buildings, and the reservation of open spaces; the Planning and Construction of Dwelling-houses, especially common lodging-houses, workmen's dwellings and residential flats; Hospitals for Infectious Diseases; the Construction and Arrangement of Asylums; and the Sanitation of Theatres and Public Halls. Those persons who have valuable suggestions to make on these subjects are earnestly requested to contribute papers. The papers may be written in English, French or German, and, for this Section, must be sent to Mr. Ernest Turner, the Secretary of the Architectural Section, at 246 Regent Street, London, in time to reach him by June 30; and abstracts of the papers, written with a typewriter, and containing not more than five hundred words, must be in his hands by June 15. No paper will be received which has been previously published, or communicated to any other society.

AN interesting competition will, it is supposed, soon be announced in Germany. The beautiful city of Munich, one of the most interesting towns in the world, architecturally and artistically, has been growing of late years with a rapidity that throws American cities of the same rank into the shade. Within the last five years, the population has increased nearly twenty-five per cent, and, including the recently annexed district of Schwabing, the town now contains three hundred and forty-nine thousand people, who find it by no means easy to get suitable places to live in. It happens that the municipality, by a curious survival of the mediæval military law, exercises control over a large territory outside the city, under the name of the "Burgfrieden," or Castle Liberty, as we should perhaps say, and nothing is needed but the improvement of this Burgfrieden, by means of streets, sewers and so on, to make it available for an almost unlimited extension of population. Instead, however, of setting cows at work to design the topography of the new district, as is said to have been the practice in the older American cities, or of striking off a map with a few flourishes of a T-square, as is the method pursued in our newer towns, the municipality of Munich, in compliance with the representations of Doctor Widenmayer, the burgomaster, and an engineer, Herr Jacob Heilmann, has recently decided, by a unanimous vote, to open a general competition for a scheme of streets for the new suburbs. Plans of the present city, and of the new district to be divided, are to be prepared, at a scale of one to five thousand, for the use of competitors, and each competitor must indicate the principal streets, as he proposes to arrange them, leaving the minor ones to be determined later, but showing a suitable system of street railways for connecting the new suburbs with each other, and with the old part of the city, as well as a steam railway for bringing the new district into convenient relation with the railway lines entering the city. Parks, squares, public-gardens, cemeteries and suitable positions for school-houses, markets, churches and public baths are to be indicated. The problem is a very inspiring one, and the competition will undoubtedly call out designs of the highest order. As the matter now stands, it is intended to appropriate three thousand dollars for prizes, of which there will probably be three, and to place the decision in the hands of a jury of not more than seven persons, to be hereafter nominated. Some months will probably be required to prepare the sketch-map for competitors, and it is supposed that six months will be allowed, after the programme and maps are ready, for the preparation of designs.

IT appears that there is a romance about the invention of India ink. As every one knows, India ink was not first made in India, but in China, and its discovery dates from the reign of Houang-ti, in the twenty-seventh century, B. C., or about sixteen hundred years before the siege of Troy. Naturally, the particulars of the investigation which led to the discovery have not come down to us, but a Chinese historian, who published, in 1398, a few years after the Battle of Crécy, a book on the subject, says that the inventor was a certain Tien-Tschen, who prepared the ink originally in the form of a liquid paint, or varnish, which was applied by means of little bamboo sticks. Later, it was found more convenient to make the ink in solid masses, generally spheres, which were rubbed in water, just as India ink is still used. The black ingredient of the ink was then the soot formed by burning lac and pine charcoal. The manufacture was confined, by Imperial privilege, to the province of Kiang-si, and an official inspector watched over the factories, each of which sent an annual tribute of ink to the Emperor. The rival manufacturers of Kiang-si resorted to various means for increasing their business by improving the quality of their product, or for temporarily increasing their profits by cheapening the material, and at this period, about the beginning of the Christian era, the dishonest manufacturers began to add musk to their ink, to conceal a defect in manufacture which is explained by a little story. A certain mandarin, named Ouen-lou, visited an ink-manufacturer named Ouang-ti, and asked for a sample of his ink. In response to this request, Ouang-ti presented himself before the mandarin, and begged him to take what he wished from a box, which he held out to him. Ouen-lou put his finger into the box, expecting to find a stick of ink, but, instead of that, a cloud of black dust flew out, and filled the whole room, as with a mist. As the mandarin gazed with astonishment on the black cloud, the manufacturer explained that the fineness and lightness of the lampblack from which the ink was to be manufactured were its most important and indispensable qualities; and that a black of perfect lightness, such as he used in his own manufacture, had naturally an odor of musk; but that his rivals in the business imposed upon authors by furnishing them with ink made of coarse and bad lampblack, made to imitate the good material by artificially perfuming with musk, which really injured the ink, rendering it susceptible to deterioration from dampness.

IN course of years, the art of making lamp-black so fine as to smell of musk by itself appears to have been lost, and musk was artificially added by all manufacturers. It is well known that the Chinese are very fond of musk, and it became common, as, indeed, it still is, to rub India ink in water, and drink the liquid, as a delicious refreshment. The particles of black pigment were held together by some kind of size or glue. Fish glue, or isinglass, was used, as well as ordinary glue, made from bones or horn, and pearls are said to have been sometimes boiled in the glue. Dried ox-tongue was occasionally added, to give the ink a purplish color, and the bark of the pepper tree produced a blue tinge. After moulding, the sticks were carefully dried, and packed in wormwood leaves, with lime or ashes, until properly seasoned. The addition of sepia, or the coloring liquid of the cuttle-fish, to the ink is not mentioned in the history, but it is said to be common now, and there is no question that the best ink at present has a brownish tinge, as if from a mixture of sepia; and sepia alone, dried, is often used in China instead of the black ink. It appears from the pages of the distinguished historian of ink that good India ink is inhabited by gods. One day, the Emperor Hiouan-Tsong was engaged in learned literary work, when he saw a little god, about the size of a fly, issue from the ink he was using, and seat himself upon the edge of the dish. This diminutive deity addressed the Emperor, introducing himself as "the Spirit of Ink," and announced that in future, whenever a truly learned man wrote with India ink, he would see the Twelve Great Gods rise from the ink, and pass before him. So far, we have no record of any literary person, who used India ink, having suffered annoyance from this cause, but we need hardly caution architects to be careful about ornamenting their plans with Chinese lettering, lest they provoke a rush of divinities from the ink-slab.

A TUNNEL is to be made through the Pyrenees, to connect France and Spain, by joining the Pau-Oleron railway on the French side with the Huesca-Lanfranc system on the other. The tunnel will be situated about four thousand feet above the sea, and is to be about five miles long. This will make it the fifth in length in Europe, the Saint-Gothard being more than nine miles, the Mont Cenis over seven and a half, the Arlberg about six and one-half, and the tunnel under the Apennines, on the Genoa-Novi line, five miles. The Simplon tunnel, whenever it is made, will be nearly twelve miles long, but it is to be hoped that it will be many years before it is completed.

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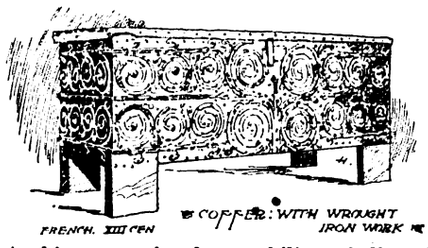
FRENCH ARCHITECTURE.[1]—VII.

MODERN TIMES.



IN the society of the seventeenth century order and well-balanced grandeur constituted the ideal; every individual had his rank, and was imbued with the spirit of his rank. Architecture aimed at nobility of dispositions, symmetry and ornamental splendor.

The most perfect balance can be only temporarily maintained, since it is established between two opposing forces, and since it is impossible for these to remain strictly equal for any great length of time. In physical bodies, each element is held in an ever-varying equilibrium by two contrary forces; one repulsive, tending to disaggregation; the other attractive, giving the body its cohesion; so, in every social organism, two contrary forces are always at work producing infinitely varied states of equilibrium, whose history presents manifold and complex examples among different peoples and at different stages of their development. One of these forces is private interest, an instinct which inheres in each individual, or in each of the elementary groups comprised in the total organism, and which is hostile to the neighboring individual or group; the other is that sentiment of solidarity, or fellowship, which compels the individual to abandon voluntarily a portion of his existence, his resources and his faculties in favor of the common interest. This it is that knits together disaggregating elements, this that supplies the bond, whether weak or strong, which binds into one the family, the city and the nation.

Thus far we have seen the monarchy struggling to break down the feudal aristocracy, and lending its power to the betterment of the condition of the lower classes. At the period of its highest glory, which marks the second half of the seventeenth century, a state of equilibrium had been attained in the various scattered forces throughout the nation, and a social condition had resulted therefrom which seemed to be girt round with power and might. But, as with everything else endowed with life, it was impossible that the forces set in play should continue to bear the same relation to each other. The discord-breeding aristocracy had been humbled and put upon a half-military, half-courtier footing. But the impetus, once given, nothing could stay it; in the following century the nobleman had become far more courtier than soldier. His useful function had lessened in importance, his primitive vigor no longer found sufficient employment on which to expend itself. During protracted periods of leisure, pleasure necessarily became his sole occupation: when a caste is deprived of the proper functions for the exercise of its powers, it must needs amuse itself to live. Those conflicts in which human activity is alternately exhausted and renewed had ceased. The aristocracy daily lost more and more of that dignity, manliness and self-respect which had been carried to such lofty heights in the preceding century; it also lost faith in everything, and everything became its sport, itself first of all.

At the same time, the intelligence and ambition of the other classes, which had been aroused in the sixteenth century, steadily strengthened, and did not again suffer a check. In the eighteenth century the human mind had shaken off all its shackles; inquisitive, it carried its ardent curiosity into every domain of knowledge, invaded everything, analyzed, dissected, doubted everything, and soon set aside all preconceived notions.

The barriers raised around the different castes had come to be nothing more than artificial obstructions, and, in fact, had no longer any reason for existing. Religious faith and faith in the monarchy, which had in former times constituted the bulwarks of society, were swept away; they disappeared as superannuated conceptions of past ages along with the social state which they had engendered. A change in social conditions was the aim of the nation, or, in other words, a new equilibrium based upon something different from the old beliefs.

In an idle society, with no resources except amusement and pleasure, the part played by woman assumes an exaggerated importance, in which her true qualities are perverted, and herein lies the greatest danger to society. Men of letters naturally come to the front, because their wit furnishes diversion; being wholly irresponsible, they unhesitatingly approach any subject, and boldly attack wherever fancy dictates, without much regard to consequences; as for the onlookers, the play seems to them merely piquant.

In the eighteenth century the various classes of society were confusedly jumbled together, presenting a veritable carnival scene, where aristocracy, capitalists, magistrates, the wanton *personnel* of the opera, musicians, dancers, pamphleteers, courtiers and valets all frolicked in company. At the same time, never before was such confidence in the present and the future displayed; never such activity of ideas, lofty and debased; never such wit nor such insipidity; never had thinkers dared to enter upon the gravest studies and the deepest researches by so many different paths, nor laid themselves open to so much trickery; never had there been so many benefactors of humanity, nor so many courtiers, men of the sword, of the long robe or of letters, men of genius, even, prostrate before the meanest offshoots of royalty; never, in a word, had the human mind been more alert, more vigorous or more malevolent, and at no period has such foam been brought to the surface.

Architecture necessarily felt the effects of all this: an exaggerated formality was destined to be superseded by unrestrained caprice. As a result of the universal contempt for symmetry and regularity, lines were broken, divided, turned and twisted in all directions; imposts were inflected; masks, grotesque and grimacing, were set askew; escutcheons were rounded out, and tilted as though tipsy; crossettes were hipped; balconies lost their shapeliness; balustrades swelled and bulged; the foliage and flowers took on jagged and slashed forms. In short, architecture and decoration alike put on a swaggering air, and soon threw off all sense of propriety.

But does this prove that the style had no other beauty than that of freshness, that it possessed no other charm than that of a wild, gypsy grace, which, to depraved tastes, is saved by its very irregularity? By no means; the school from which it sprang was too noble for that; it was impossible that every good principle should have been abandoned; moreover, this exuberance of whim and fancy, this revolt against all reasonable rule, did not go as far as might be imagined: they were always under the restraint of taste, which is never lost sight of in the French school, and of a certain residuum of reason which will always be found underlying the most pronounced eccentricities; and again, their mischievous grace and inexhaustible spirit crave pardon for them.

Indeed, it is in this very respect that the style must be admitted to be preëminently French, for, whatever its defects, it reflects all the qualities of our race; it is in this respect also that it is inimitable. In spite of the reproaches justly heaped upon the France of the eighteenth century, she still possessed such prestige that her architectural style was widely imitated in foreign lands; there, it is often open to condemnation: in hands that lacked that exquisitely delicate touch which can make eccentricity pardonable, the Louis Quinze style exhibited only its defects, and became intolerable.

We weary of everything in time, especially of disorder; the monarchical organization, after having been of incalculable benefit to France, was daily disintegrating, and threatened the ruin of the country along with its own. The old institutions had been so perverted that they were now nothing more than abused and dangerous privileges. "Amid the humiliations of the Seven Years' War, and even through these humiliations, the drama of the century rapidly approached its climax. Who was vanquished in this war and the preceding? France? No, the nobility; the nobility from whose ranks the officers and generals were drawn.[2] As for the generals, the only ones that bear mention at this period, Saxe and Broglie, were foreigners. He who claims the glory of Fontenoy, the great general of the age in the opinion of ladies and courtiers, the hero of Port Mahon, the old Alcibiades of the old Voltaire, Richelieu, had sufficiently proved, during five campaigns of the previous war, the value of this reputation so cleverly constructed and guarded.

"Toward the close of this ignoble Seven Years' War, during which the aristocracy had fallen so low, the great plebian thought broke forth in speech. It was as though France would have cried out to Europe: 'It is not I who am conquered.' In

[1] From the French of P. Planat, in Planat's "*Encyclopédie de l'Architecture et de la Construction.*" Continued from page 98, No. 803.

[2] Michelet's remarks here are not quite accurate. Marshals de Belle-Isle, de Maillebois and others were the descendants of Fouquet, Desmarets and other very plebian advisers of Louis XIV. All the world was guilty in the eighteenth century.

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1750 Jean-Jacques Rousseau, the son of a watchmaker of Geneva, vagabond, copyist and lackey in turn, had published his curse upon science, in hatred of the philosophism of the lettered caste; then followed a curse upon inequality, called out by his detestation of the degenerate nobility. This effective, levelling dissolution was carried on with torrential force in the '*Lettres de la Nouvelle Héloise.*' Naturalism was proclaimed in '*Emile*'; deism, in the '*Profession de foi du vicaire Savoyard.*' Finally, in the *Contrat Social* appeared the three fateful words of the Revolution, traced with a hand of fire."

It must not, however, be supposed that the writings of Rousseau alone could have brought about the Revolution. The Revolution, in fact, embraces two distinct revolutions which, owing to the precipitation of events after 1789, are too readily confounded: one was the bourgeois, parliamentary struggle against the monarchy, the precursory signs of which were already apparent in the attitude of the parliaments of the seventeenth and eighteenth centuries, and which includes the period from 1789 to the fall of the Girondists; this might have terminated, as did the revolution in England, in the establishment of a liberal, constitutional monarchy, a monarchy freed from its abuses; the other was wholly a democratic, republican struggle, in which the lowest strata of the populace came to the surface. Viewed from our present standpoint, it is still older than the first, for the social explosion accompanied the violent reappearance of a race determined, once for all, to overcome all obstacles to that rule which its superiority in numbers assured to it.

This popular movement, in its violence and its brutality, was blind and inconscient; it was doomed to the most extraordinary vicissitudes, but arrest was impossible; it required no bold prophet to predict that the people would stand at last sole masters amid the ruined institutions which they had overthrown, with the task before them of building up, in their turn, a new edifice.

We are now on the eve of terrible and grandiose events; the arts must, for a time, be eclipsed by far more pressing interests. During the reign of Louis XVI there was a brief halt at the summit of the slope down which everything was about to be summarily hurled. "For this old society it was an era of happiness and ingenuous emotion; it wept, admired itself in its tears, and thought its youth had been renewed. The fashionable *genre* was the idyl; first came the vapidness of Florian, the innocence of Gessner, then the immortal eclogue of Paul and Virginia. The queen had a hamlet and a dairy at the Trianon. Philosophers held the plough . . . in writing; 'Choiseul is a husbandman and Voltaire a farmer.' Everybody was interested in the people, loved the people, wrote for the people; benevolence constituted a part of good breeding, small alms and grand fêtes were the fashion."

But the people had far other needs and ambitions. Nevertheless, a little spot of blue could be discerned in the black, storm-laden sky. There was a groping after a new ideal. Would it be taken from the feudal past, before the early beginnings of French nationality? A certain aristocratic school did, in fact, attempt this; they sang the praises of chivalry and the beauties of the Middle Ages, for the dawn of the Romantic movement dates much farther back than is generally supposed. It began in France, as well as in England, in the eighteenth century; it sent out a vivid gleam on the appearance of Chateaubriand, long before the school of 1830 rose, but at no time did it become popular.

The movement which won the favor of the people was directed toward the revival of the standards of Roman antiquity; in literature, in art, on the stage, as afterward in popular song, and on the battlefield, we believed that we were resurrecting the mighty past of the Republic or of the Empire of Cæsar and Augustus; we adopted Roman names, pronounced Roman harangues, copied Roman manners and Roman costumes; we boasted of our descent from the heroes of antiquity. In all this we oftentimes put ourselves before the world in a most ridiculous light, and yet we were not wholly in the wrong: the past of modern France is deeply rooted in Latin and Roman soil.

It was in this way that the Classical school, which finally succumbed under its own weight, was founded. It was not as preposterous at first as it has seemed since, or as writers have tried to make it appear; it had its *raison d'être:* the French are Latin to a great extent, and Latin they will long remain, whatever may be said to the contrary. At all events, this Classic dawn was full of charming grace; architecture, following the general movement of ideas and manners, and stimulated by the recent discoveries at Pompeii, abandoned forever the capriciousness and license of the Louis Quinze style. Returning to its remote sources, it was once more inspired with the feeling and taste for simplicity, tranquil harmony and happy proportions, which, with a few quiet decorations, form the chief beauty of an edifice. Rectangular shapes were adopted, the straight line became dominant again; rectilinear channellings and a few simple interlaced patterns of antique design furnished the ornamental element.

At a later period, the tragic events of our history, our strictly military customs, as well as the decay of intelligence, led to coldness and soreness in our art. We will go no farther, for we have reached the threshold of modern art, when every architectural style is about to disappear — when it may even be said that there will be no more architecture for a time.

Religious society had had its architecture; monarchial society had found the gratification and expression of its peculiar needs in a new art. At the beginning of this century, these two great powers, which had alternately swayed the world, were, if not completely dethroned, at least greatly weakened, and their creative faculty had departed. An industrial power had, it is true, sprung up to supplant them. This is gradually absorbing the great forces of the country; but this power has little need of an architecture; it possesses few qualifications for the creation of an art. The bourgeoisie passed through their heroic and military age during the Revolution; they then settled down to the accumulation of wealth. What are their artistic needs? Having arrived at fortune by means of economy, they can scarcely comprehend any but economical luxury, and that never engenders art.

Religious architecture is, then, to-day merely an official formula, made up from decent survivals; royal, princely or seigneurial architecture went down with the court and the great aristocracy; the bourgeoisie, under bourgeois rule, despite their many estimable qualities, have long showed themselves incapable of originating anything in the realm of the arts bearing upon architecture.

Notwithstanding the tireless piling up of wealth, toward the close of a period of pettiness and sterility, broader traditions are beginning to take shape and on more modest proportions than in the past we see, meanwhile, the advent of a private architecture, which is at the same time attractive, comfortable and elegant. True sumptuousness, that which is in accordance with taste, is appearing again, and it may be predicted that this art will return to the traditions of the past and perpetuate them, on a smaller scale.

It is not true, however, that the great innovation is to come, the transformation requisite to a veritable *renaissance.* Where will it appear? This is demanding in what quarter a new and mighty power is to arise. It is possible that it may be looked for from the recent accession of the masses to the throne; the power of the people is already making itself felt in politics, literature and in some of the arts. Its advent is the great characteristic fact of the eighteenth century. In architecture, what manifestation is it making? A few important public edifices — town-halls and theatres, the palaces of our democracies — have already been erected for its service. But the only work which it may be said to have originated, the only work purely its own and which has no prototype in the past, is the modern Exhibition building; these colossal structures are built for the accommodation of vast throngs who know nothing of tradition, who want nothing of copies from a past in which they had no part and who care not a fig for imitations which do not benefit themselves.

A careful study of the subject would doubtless show that the artist always creates to satisfy an immediate, pressing want, which dictates the law to him; that an art is always formed and developed as much by the desires, the inclinations, and even the demands of the patron, protector or employer as by the artist's initiative; the mission of the artist consists mainly in discovering what the world is waiting for, what it needs; hence the universal welcome accorded to each new solution, hence the eagerness with which it is adopted and amplified, hence, too, that unity which appears in every one of the great styles of former times, whose forms were at once accepted, consecrated and forced into use by the popular taste.

For three centuries it has been out of the question that a complete removal or radical transformation of architecture should come about, as in the grand historic epochs, through the appearance of a new race; but we may expect what has already occurred several times during this interval, namely, partial

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rejuvenating transformations, sufficiently radical to sustain the vitality of art, which, in fact, lives only by transformations.

For this, different needs must make themselves felt; such needs always follow in the train of modifications in the social state and the customs which it engenders. It may be that this democratic accession to power will prove to be one of these modifications, and a most radical one.

Possibly this democracy, in its confused, but powerful, virgin instinct, may have vaguely comprehended that something is preparing for it, a work which is to be its work; it apparently cares little for our petty criticisms, however just we may deem them; it hardly pauses to consider the objections raised by our purism; it pays little heed when we halt before those gigantic palaces, which have recently sprung up, to analyze them, to criticize the heaviness of certain parts, their inelegance or awkwardness and their so-called refinements, which are merely lack of power. It looks little to details; in a broad way it has caught a glimpse in this imposing *ensemble* of something new, created for it and in its image, and which speaks to its soul. There is still, too much routine, there are yet too many traditions which we find difficulty in dislodging? No matter, this democracy has felt the stir of a new emotion, and it cares not for criticism.

It is right. All these things will correct themselves, provided that the new may be resolutely followed, provided that new combinations be boldly tried, even though some prove unfortunate; let the work go on, notwithstanding imperfections and failures; let every innovation, every departure from hackneyed conventionality, find encouragement. The only thing that could prove incorrigible is that powerlessness which persists in servilely imitating an art that is representative of a dead past, whether Classic or Gothic. P. PLANAT.

EMMANUEL FRÉMIET.[1] — VIII.

Fremiet, Sculptor.

FRÉMIET'S contribution to the Universal Exhibition of 1889, was far more important in quality and quantity of work than that of any other sculptor. It was especially important because it gave a unique opportunity to study it in close proximity to that of other sculptors. Those who had long been his admirers enjoyed a high confirming and comparative satisfaction, while many partisans of other sculptors were astonished at the superiority of the "Age of Stone," "Robber of Young Bears," and the "Gorilla," and willingly accorded

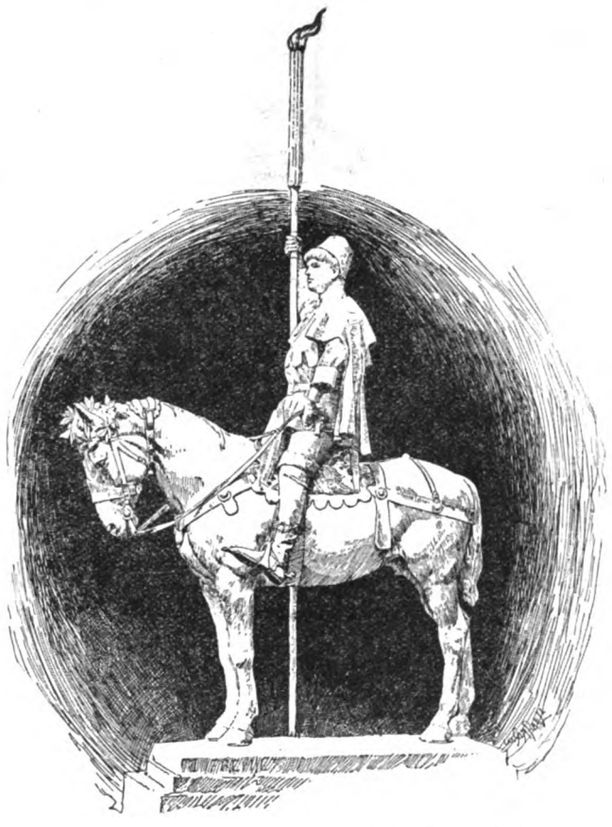
"Wounded Dog" in the Luxembourg Gallery, Paris. Fremiet, Sculptor.

it to their author. Then, M. More, his editor, made a very complete exhibition of his small bronzes, and reduced copies of his large ones, about a hundred and fifty in all, and this presented an extremely interesting opportunity to study the full range of the sculptor's equestrian work. As a whole, the show was immensely imposing: the labor of a life of undeviating loyalty to art on a high plane. From the best judges of all countries, there came the verdict that to Frémiet all must bow. So, at the age of sixty-five years, he becomes known to all the world as the greatest living master of the

"St. Hubert" (Bronze Statuette). Fremiet, Sculptor.

art of sculpture. The press generally joined in this encomium, adding that he "best represented a school, originated by Barye, which places itself squarely in front of nature, without regard to symbolism or anthropomorphism."

The art-exhibit at the great Exhibition brought about among other things, some terribly levelling effects. Works that had been popularly accepted as classics for a quarter of a century went out



The "Porte-Falot" in the Hotel de Ville, Paris. Fremiet, Sculptor.

like a flash, and men who had been recognized by the same momentary feeling for a like period left the stage in shadow. A new dispensation, based upon a better understanding between the art of a day and that of time, was ushered in, for a time, at least.

[1] Continued from No. 801, page 72.

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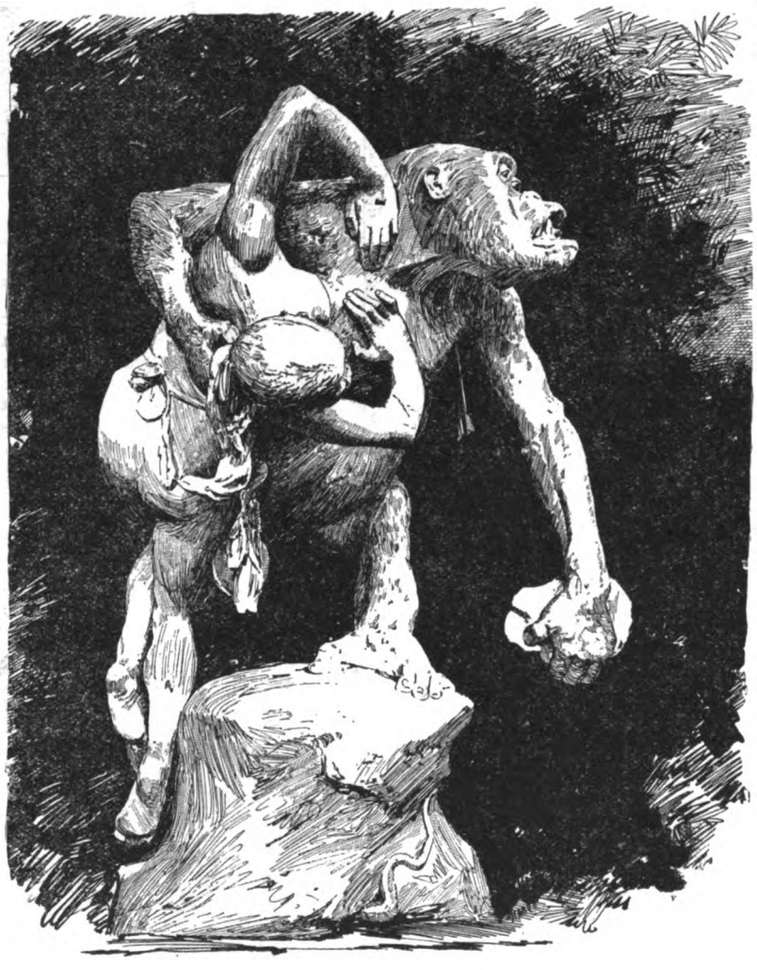
In sculpture, three other men held their own, Aubé, with his immortal "Bailly," Rodin, with his "Age of Brass," and Dalou, with his "Mirabeau" bas-relief. And they held it with high distinction.

In Barye's life-time, lovers of fine bronzes made it a kind of pilgrimage when they went along the banks of the Seine to No. 4, Quai des Celestins. But they were rare lovers, and only a few bronzes were sold. He being dead, now since fifteen years, the pieces bring fabulous prices when (seldom) found.

It is a curious phase of art-history that even those who like fine bronzes learn little by experience. With the unexplainable exception of the large sale of the reduced "Joan of Arc," few purchasers find their way to Frémiet's collection in the Rue Béranger, No. 7. Yet they are ready to be bought, and now is the time. No one doubts that after their author leaves the scene that he has so long ennobled, his bronzes will pass through the same experience as those of his great contemporary. More curious still is this indifference, when it is remembered that Frémiet is the only living master who is personally concerned in the production of his little masterpieces. Paris auctioneers, in selling poor bronzes, try to give value to them, by saying that they are in the style of Barye and Frémiet. Thus is trade touched by art.

When the Spanish bull-fighters came to Paris, during the great exhibition of 1889, they brought with them various kinds of horses, among which was one that Frémiet had never seen in the flesh, though often indicated in various illustrations. It excited his interest, and he made one, life-size, placing upon it as a rider, the great painter, Velasquez. This equestrian work was sent to the *Salon* of 1890. The great popular procession in favor of the sculptor was now perfectly formed and in marching order, it only remained to make the noise whenever occasion required. That made over the "Velasquez" could hardly be exceeded. If ever known and unknown merits were found in an equestrian statue it was then and there exposed to millions of readers. The press rang their loudest changes. "He has surpassed himself on this occasion. His 'Velasquez' has the nobility and pride of style of a hero. One has nothing to do but to bow down to it." "I don't know why, but Frémiet is always classed among the *animaliers*, yet he sends this year a 'Velasquez' on horseback of superb line, and of high elegance. It is superfluous to praise M. Frémiet." "The best thing in the *Salon*." "Proud and majestic. Excellent statue of heroic character." "Grand art, patiently studied, great in expression, and of beautiful style." "This knight of noble mien is like a forerunner of painting, and ought to be set up in the most beautiful alley of the garden of the Tuileries, in front of the Louvre, as though he came to announce to Paris the prodigious cortége of the glorious masters of all times."



"Gorilla and Woman." Fremiet, Sculptor.

M. A. Michel, in the *Debats*, wrote as follows — after alluding to the monotonous similarity of statues of artists — "M. Frémiet is not in the habit of running his statues in ready-made moulds. A pupil of Rude, he learned, in the school of that master, to 'render nature in its variety.' Freed, more than any one, from every servitude of formula, and of transmitted style, he has, with a valiant curiosity and a beautiful audacity, pushed his researches and labors in the most diverse ways. With an always original sentiment, an ample interpretation, a sincerity of accent and a bravery that no danger intimidates, he has brought to life one after another, in bronze and marble, the 'Gorilla,' the 'Troglodyte' in his unchained beastliness, the 'Virgin of Orleans,' the 'Age of Stone,' good and happy brute, and his lordship, the 'Prince of Condé;' he has lifted up with a superior intelligence and surprising ease, the elementary forms of life to the highest historic style.

"He did not think that in order to glorify the grand, noble and proud Diego Rodriguez de Sylva y Velasquez, it was enough to place him sitting in a chair, palette in hand, but he has evoked him in the semblance of a Roman knight." Then follows a minute description of the painter's costume, the article closing in these words, "It is thus, with his mahl-stick entwined with a branch of laurel, probably, that he appeared in his quality of Aposentador Mayor, as he preceded the royal cortége as it entered Fontarabic, to make preparations for the interview between Philip IV and Louis XIV."

"What will you do with the Velasquez?" I asked the sculptor.

"I hope to sell it to the State, but as that is very doubtful I shall be obliged to cut off V's head and put on that of some one else, in order to get rid of it. I only ask its actual cost. It is the best statue, after 'Joan of Arc,' that I have made."

The contrast presented between the little tale about this statue, and the closing sentence uttered by its author, is an excellent illustration of the impotence of the French press to influence the government authorities in matters of art. And it may be added, that, quite contrary to what many believe, there is no such thing in Paris or France as a defined and controlling influence in favor of first-class art. Nor is there in Paris a single specimen of such art that has not had to go through the crucible of public indifference and hatred, and if saved at all, saved only by the fortunate influence of some single individual.

"A hot word may bring on a revolution, and a sarcastic one change the course of national events." — *Old French Proverb.*

In July, 1889, there was erected with considerable ceremony, a colossal equestrian statue of Etienne Marcel, one of the early mayors of Paris, on the Seine side of the Hôtel de Ville. It was the result of a public competition, held some years previous, in which Frémiet took part. The whole history of this statue is quite as interesting, though not quite as lively as that part which immediately concerned our sculptor, but it must be omitted. There were four competitors for this statue, Frémiet, Aubé, Idrac and another, and a committee of artists, of whom the late M. Schœnewerk, sculptor, was one, was to decide upon the merits of the models. The sketches, which were half life-size, in plaster, were exposed in one of the large rooms of the above-mentioned building. Aubé's sketch was a very beautiful one, Frémiet's much the best, and the other two common-place. Frémiet's appeared as it came from its mould, a simple effect of plaster, but of large style in line and mass. Idrac's presented all the surface allurements that is known to the ingenious and picturesque-loving French worker in plaster: deftly colored in various attractive tints, lights and shadows displayed with the most striking and brilliant care, and all richly heightened with shining gold. As Schœnewerk entered the room, he exclaimed, in a tone and manner that carried appropriate force to his words, "Ah! that one," pointing to Frémiet's, "looks like the valet of this one," as he turned to that of Idrac. The latter's model was selected. It is not too much to say that this disgracefully flippant observation lost to Paris, France and the world a great equestrian statue, and got instead a very poor one. The second prize was awarded to the author of the "Valet," and six hundred dollars given for his model, which may be seen in the museum of sketches and models belonging to the City of Paris.

This chronological account of the sculptor's productions by no means includes the scores of small works that form a great part of his collection, many which have never been reproduced. The history of some of them is as interesting as the things themselves. Soon after the great fire in Chicago, the French artists made a contribution of an example of one or two of their works for the benefit of the sufferers, to be disposed of by lottery, but as it was thought that more money could be realized by selling them at auction, the last plan was carried out. If I remember aright the amount thus obtained was thirty thousand dollars, and I also have the impression

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that the contributors have never found out to this day what became of the money, after it arrived at its destination. I think that at the time when there was much difficulty in raising funds for the pedestal of the Statue of Liberty, in New York harbor, a reference was made to this matter by the author of that work.

Frémiet's gift to this enterprise was a wax representation of a gorilla, running off as fast as his legs could carry him with a copy of the Venus de Milo under his arm. Into whose hands this amusing object went, the sculptor never knew. The memory of it, however, remains very vividly with those who saw it, as a composition of remarkable *verve* and great style. Some people were wicked enough to affirm that it was a skit on the English, because of their fame in buying so many fine works of art, and so seldom producing them.

Among the sculptor's small bronzes are a lot of letter-seal handles and paper-weights, curiously artistic, grotesque and amusing, one of the funniest being an elephant standing on his head on a ball. Another represents a frog bent over and tied to the end of a stick, simply the reproduction of a fact, for as the sculptor was going along the banks of the Seine, one day, he saw this unfortunate creature thus imprisoned, a bait for the savage pickerel; he took it home, made a copy in wax, and returned it to its place in the water.

One of the most deliciously delicate of these little affairs, is a crane reaching out to catch a fly on the ground.

But sculpture has not filled all the sculptor's hours, for he has found time to paint and draw a great deal, and has been an exhibitor at the *Salon* in these departments of art.

As the Institute is the highest organized public recognizer of genius in France, and the world, I, wondering why Frémiet had

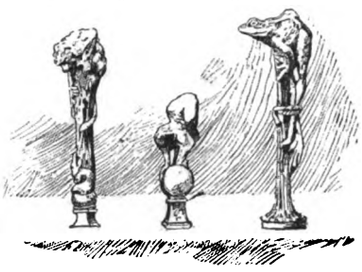
"Velasquez." Fremiet, Sculptor.

not long since been made a member, asked an eminent sculptor what the reason was, and he said — "Ah, mon Dieu! It is very simple. — He is too big, bigger than all of them together.

"They rarely take in any one above their own level. Bear in mind that Frémiet is not a graduate of the École des Beaux-Arts, and that the Institute is a close corporation for the special benefit of its graduates. No man can successfully contend against either of these influences, and they are the inevitable enemies of original minds. None of our great artists belong to the Institute, and I don't think they ever will. Of painters, it prefers Chaplain to Chavannes, and it is the same with the sculptors. Frémiet is an independent; his work is as exceptional in its character as is his temperament. He has never had any professional sympathy save from a few who were capable of understanding and appreciating him. Both are miracles, his life and his productions. He has had nothing whatever to do with his own generation, or his own century. He stands for himself, and great historical landmarks. It takes time for such men to be appreciated. Time and again has he been passed over in favor of inferior men. I cannot tell whether Frémiet will ever get into the Institute.

"Barye was only made a member at the last moment, and almost in spite of himself. He had got to be such a power individually that the Institute felt that it would not do to lose him, and so they fairly 'ran him in.' I am certain that Frémiet would like the honor. 'Member of the Institute' has a loud sound, greater than itself. Its really great men preserve its dignity.

"Much as this coagulated body is laughed at, we all want to get into it. I believe that Barye himself was by no means indifferent to the public honor his membership gave him. It finishes an artist's living ambition, and few are strong enough to resist the desire for it. Then, above all things, an artist loves to be esteemed by his profession, and especially after a life of active toil, passed perhaps without other thought than the pleasure of work. As age comes on, and the vigor of production grows less imperative, he becomes more human, fonder of companionship, and more susceptible to the sweet voice of popular enconium.



Letter-seals. Fremiet, Sculptor.

"The Institute has monthly meetings and dinners, and all the fellows have a good time together. There they meet on a common level, feel authoritative, as though they had really, at last, 'got there.' Frémiet has an imperial right to all his country can give him. He is more than an Institute himself. His professional life has been one of the most dignified, devoted and loyal, in all the history of French art."

"As you have alluded to Barye, and I am necessarily obliged to constantly refer to him in what I am writing, will you tell me what you think of him and Rude," I asked; "a kind of summing up?" "O, yes. Barye was, by all odds, the greatest sculptor of ferocious animals, since the ancients. To explain why would be a long story. Outside of that he was not so great. He could not make anything like as good a horse as Frémiet. His horses were made from *chic*. He never had the chance to study the horse as he did other animals. Of course, everything he did bore the touch of a master, but other sculptors since his day have made much better figures of human beings. Barye's tremendous power in wild animals ranks him, at present, in the estimation of the most thoughtful judges, as our greatest sculptor. Rude, in the sense of an ideal sculptor of the human form, was greater than Barye. The style of his temperament was higher. He was a man of a richer mould. Once refused by the Institute, a very commonplace man being elected in his stead, no amount of conciliation would tempt him to apply for admission the second time. In this expression of sterling self-respect he was greater than Barye. Both the École des Beaux-Arts and the Institute fought and abused Rude, and continued that treatment to his pupils. In 1846, I think it was, he refused to send his "Napoleon" to the *Salon*, and the latter in turn, refused the work of sixteen of his pupils. To-day, you never hear a member of the Institute spoken of, as such, as a representative of French sculpture, it is Rude and Barye.

"Still, Barye's scheme was not the highest intellectually. He was a giant of the jungle, not of men and horses. If you will observe Frémiet's works you will find that his range of mind is on a much more elevated plane, wider in extent, and better balanced in his loyalty, to nature.

"It is the savage sentiment in Barye, the human in Rude. The first could bear no rival, and saw no merit in others' work, while the last was the contrary, to tenderness. It is only on general lines that we can arrive at an estimate of such men."

In many respects Frémiet is better known and appreciated in other countries than his own. He has exhibited in almost every city in Europe, and very often in Munich, where they always ask him to send his best things. For the "Gorilla," and "Group of Race-horses," he received a gold medal from that city, and he is also a member of its Academy of Fine Arts. It was there that I first heard of the sculptor, in the summer of 1869, and spoken of in warm terms. He is a great favorite in Madrid, and a member of its Academy Royal. A half life-size copy of the "Porte Falot" went to Copenhagen, in 1887, and the horses of the Luxembourg fountain, to Vienna, in 1882.

What a curious and interesting fact of human nature it is, that as soon as the personality of an artist is out of the question, the sensibilities work more freely and rivalry is unknown. But let the personality appear, and there is a general blindness of the sensibilities, and rivalry show up in surprising vigor. Perhaps in these old countries this fact is more evident than anywhere else, because every country is loyal, to a very extreme degree, to its own artist, and they have, as a consequence, no fear of foreign competition. There is no reason, therefore, why admiration should not have its full exercise. Frémiet's originality, never questioned anywhere as a fact, receives in foreign cities its due applause. T. H. BARTLETT.

[To be continued.]

SOLUBLE GLASS. — Soluble glass is made by heating in a reverberatory furnace until fusion becomes quiet 1,260 lbs. white sand and 600 lbs. of potash of 78 degrees. This will produce, says the *American Stationer*, 1,690 lbs. of transparent homogeneous glass with a slight tinge of amber. This glass is only little soluble, even in hot water. To dissolve it the broken fragments are placed in an iron digester charged with a sufficient quantity of water, at a high pressure, to make a solution marking 33 to 35 degrees Baumé. Distilled or rain water should be used, as the calcareous salts contained in ordinary water would produce insoluble salts of silicate of lime, which would render the solution torpid and opalescent; this solution contains silicate and potash combined together in the proportion of 70 to 30.

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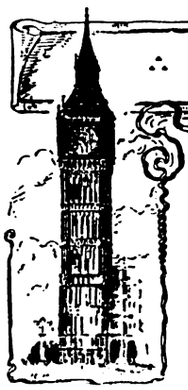

LONDON

THE LATE J. D. SEDDING. — THE GOVERNMENT BUILDINGS AT SOUTH KENSINGTON. — MISNAMED MODEL-TENEMENTS. — DECORATIVE PAINTING. — THE SEWERAGE SYSTEM OF THE METROPOLIS.

WE have suffered a very great loss in England by the death, in his prime, of Mr. J. D. Sedding. Probably there was no one who aroused one's enthusiasm in the way that Sedding did. He was one of those with a winning way and a charm of manner which endeared him to those around him, despite his oddnesses and quaint inconsistencies, for Sedding never thought two days alike.

His work, like his thoughts, was full of inconsistencies but always very charming, because it showed so well the personality of the man. He is represented in London by a few churches, notably Holy Trinity, Sloane Street; Holy Trinity, Clerkenwell, while in the country many examples of his genius may be found.

Sedding was not a rich or an aristocratic architect, but the son of a village schoolmaster. In early days he was destined for a baker and was actually apprenticed to a baker when he was twelve years old. But his artistic temperament could not stomach baking, so he found his way into Mr. Street's office, ultimately practising in Cornwall, afterwards in London. His career was one continual advance, and at the time of his death he was a Member of Council and Chairman of the Art Committee at the Royal Institute of British Architects. Despite his extensive and busy practice he was always ready and anxious to give up his time to his fellow architects, and many a time has he come down to the Architectural Association and mixed with the students quite as one of themselves, helping them on in their work by one of his cheery, welcome speeches and by the example of his enthusiasm which seemed always brimming over in him. Mr. Sedding was an ardent devotee of the Catholic movement in the English Church and held for a long time the position of churchwarden in the world-famed Church of St. Alban, Holborn.

The proposed devotion of the site in Exhibition Road, South Kensington, to the new Gallery of British Art, has aroused the ire of the scientists. It is thought that this piece of land was intended to have been set apart for the erection of additional galleries for the College of Science, and the agitation culminated in questions in the House of Commons. On April 16, Mr. Mundella asked whether the Government had fully considered the difficulties of placing an art gallery, under independent management, between portions of the Science School and the science collections, but it was replied that any addition to the College of Science must of necessity take the form of a separate building across Exhibition Road and the subway leading thereto might, without any inconvenience to any one, be lengthened by some sixty yards or so, the length of the site for the new Gallery of Art.

It is a little doubtful whether the Government are quite wise in crowding together so many large national buildings at South Kensington. At the corner of the Cromwell and Exhibition Roads there is South Kensington Museum, which, when it is completed, will be one of the most extensive museums of its kind in the world. At the opposite corner of the same two roads and occupying the whole frontage between Exhibition Road and Queen's Gate is Mr. Waterhouse's *chef d'œuvre*, the Natural History Museum. Parallel to these and almost as large is Mr. Collcutt's Imperial Institute, while a little farther on in the Exhibition Road stands the great Technical School of the City and Guilds of London. Besides all these important buildings there is Sir Arthur Blomfield's new Royal College of Music, and sundry smaller schools of a technical nature; and now we are to have the National Gallery of British Art and apparently another gallery of science. These various buildings, if they had been judiciously placed about London in prominent positions would have had far more effect than they have now, crowded together at South Kensington where their grandeur is minimized by the scale of the surroundings.

The increased activity in favor of a municipal water-supply for London, has caused Birmingham to definitely take a very important step, avowedly with the intention of being first in the field. They decided on Tuesday, April 21, to authorize their Water Committee to obtain detailed plans, specifications and estimates of the cost of obtaining a new water-supply for the city from the rivers Elan and Claorwen in Wales. The watershed of these rivers is about seventy square miles, and the cost, it is thought, will be at least £4,000,000.

An important inquiry has recently been held by the Government upon the sanitary condition of Shoreditch, the adjoining parish to Bethnal Green, which contains the great improvement scheme of the London County Council. This report is chiefly of interest to the general reader on account of some severe remarks by the Government Commissioners on the so-called "model" blocks of dwellings, where residences for the poorer classes or "lettings," as they are familiarly termed, are superimposed on the flat system. The Commissioners report reads: "To say that some of these model blocks are built without due regard to sanitary requirements would be a misuse of language. The fact is that they are built in gross violation of some of the very first principles of sanitation. We may draw attention to some blocks of dwellings on the Vinegar Ground, Shoreditch, which illustrate our meaning in the most striking manner. Here will be found buildings on the flat system over forty feet high and less than twenty feet apart, containing large numbers of separate tenements approached by dark corridors. The water-closets for these dwellings abut on the corridors, and are without direct light or proper ventilation. The dwellings thus approached contain rooms, many of which can never be penetrated by the rays of the sun. These dark, gloomy habitations are in our opinion far more likely to become a danger to the public health than are even the worst of the dilapidated cottages to which public attention has been drawn by the Mansion House Council."

This report of the Government Commissioners is of a highly important character, as it indicates that some control will have to be exercised over the erection of these artisans' dwellings. The pressure of space in London compels the erection of flats of this nature, and it is necessary that the so-called "model" buildings should really be *sanitary* dwellings. Otherwise the labors of the municipality in expending vast sums in demolishing rookeries and slums will have only resulted in the substitution of one evil for another. I understand the London County Council is, therefore, about to institute a searching inquiry into the question of construction and administration of dwellings for the poor, erected upon the flat system.

A very interesting discussion took place at the Royal Institute of British Architects, on April 20, on Decorative Painting. The meeting had been arranged by the Art Standing Committee, and three papers were delivered by three decorative artists, Messrs. W. B. Richmond, N. J. H. Westlake and Ford Madox Brown, with a short introductory paper by Mr. J. M. Brydon. Mr. Richmond dealt with the question of fresco-painting, which he regretted could not safely be employed in London, or in the great manufacturing towns of England, from the character of the atmosphere. For country houses, town-halls, or country churches the process was a most suitable one, and he would like to see it now extensively used. After explaining the materials in which fresco-painting should be executed he stated that it was the very life of fresco and of decorative work that it should never be pictorial, and never greatly embarassed by light and shade, and that to attempt in fresco, what oil-color could do much better, was like asking a violin to give the full harmony of an orchestra. The strength of fresco was light, the strength of oil was shade. He deplored the lack of really competent fresco-painters and advocated the establishment of a school of fresco-painters. The other two papers dealt in a more general manner with other methods of mural decorations. There was a bright and animated discussion, and more than one speaker referred in terms of congratulation to the gradual *rapprochement* which is now going on between the sister-arts of painting, sculpture and architecture. There is no doubt that these arts are beginning to understand one another a little better and that there is growing up a sympathy between the three divorced professions that predestines a bright future for English art.

The Architectural Association are at last proceeding in earnest with their new scheme of education. There has been a good deal of unnecessary delay, caused mainly by members who are opposed to the new development, but all is now amicably settled, and there is every chance of the new scheme being put into working order in time for next session's work.

I have been considering for some time, how I could best place before you the chief problems of an architectural and engineering nature, which have to be dealt with by the Municipality of London, and it has seemed to be a convenient procedure to give, as briefly as possible, an epitome of the present position of such questions as the drainage, water-supply, etc., in order to facilitate the comprehension of the current history of the various matters. I propose to deal first with the drainage question, considering in this letter the collection of sewage, and dealing in subsequent letters with its disposal and the many different points in connection therewith.

Among the many abstruse sanitary questions which London is called upon to solve, one of the most important is the collection and disposal of sewage. To comprehend this question thoroughly it is desirable to master the geographical configuration of England's metropolis. London is situated in a great basin, flanked north and south by ranges of hills some twenty-five miles apart. Laterally, the plain is nearly level, though there is a very slight rise westerly, towards Windsor, while on the sea or eastern side the flanking hills gradually disappear, and the whole of the country due east of London is a grassy, marshy plain, occupying the greater portion of the county of Essex. The centre of this basin is occupied by the River Thames, which is a tidal river for some forty miles of its length, the first lock being at Teddington, eighteen and one-half miles above London Bridge. This brief sketch will serve to make clear one or two of the chief factors in the problem, which may be defined in the following manner.

(*a*) The rise to the north and south and the slight rise to the west preclude any scheme for disposing of the sewage on sewage-farms surrounding the outskirts of London.

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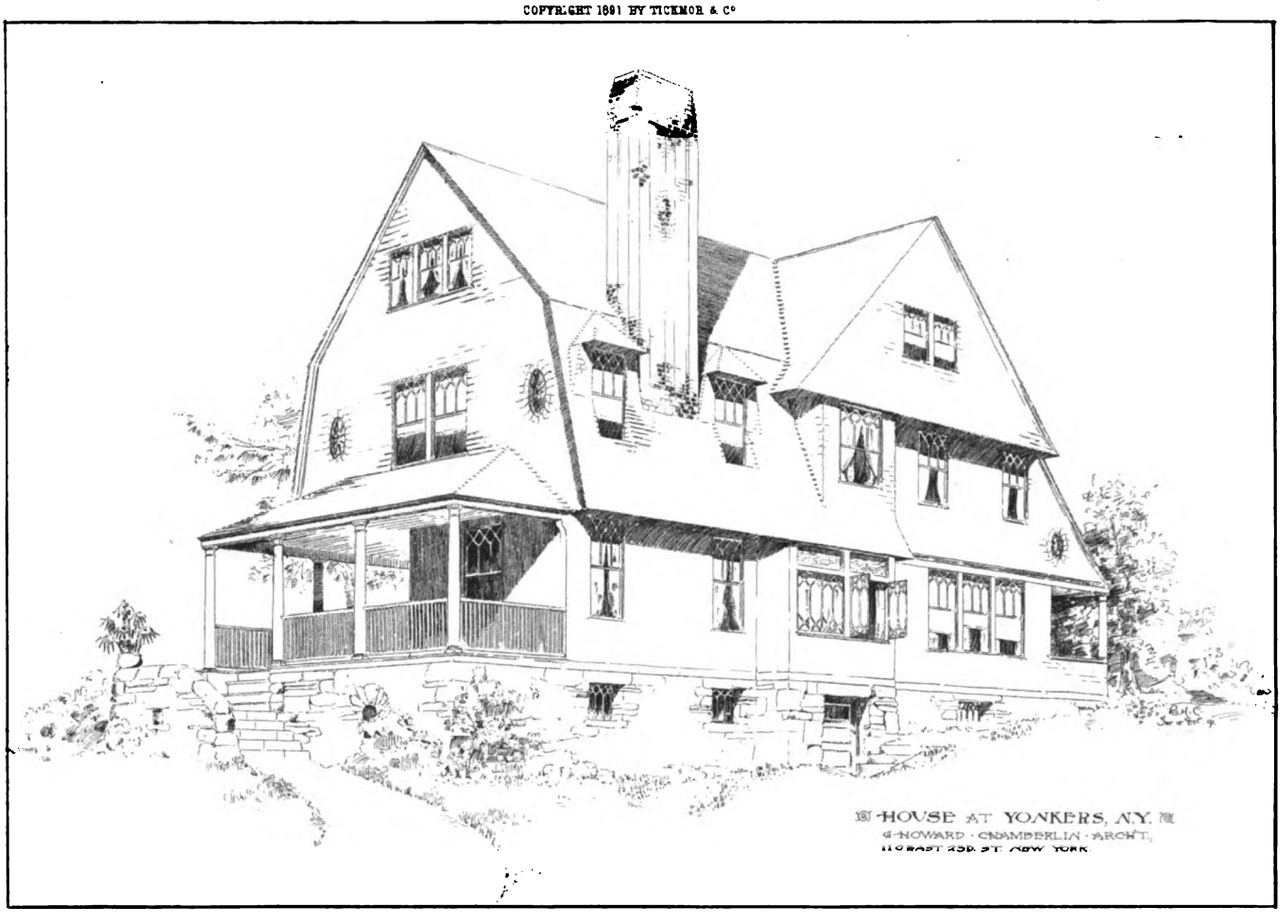
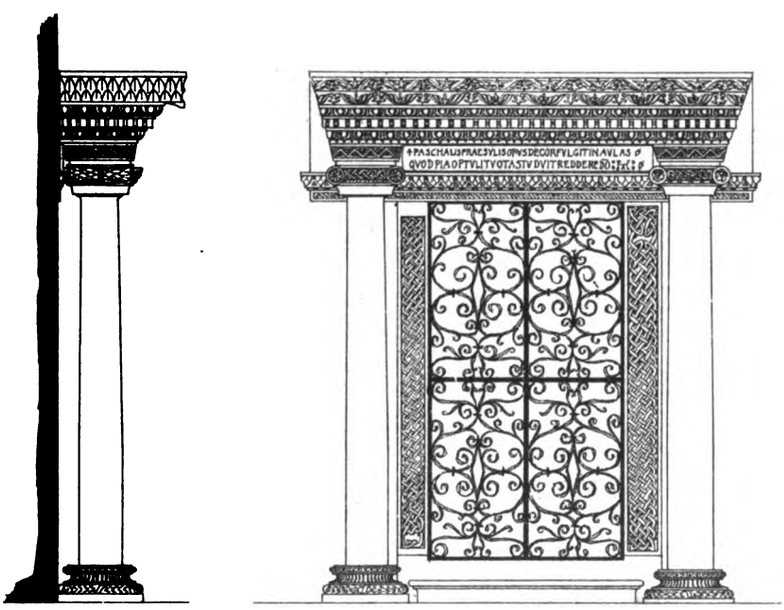
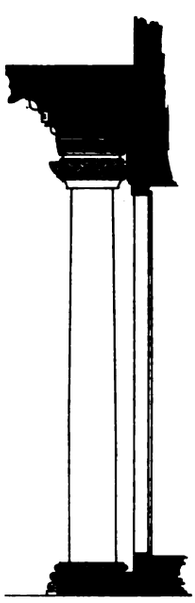


HOUSE AT YONKERS, N.Y.
G. HOWARD CHAMBERLIN, ARCHT.
11 EAST 23D ST. NEW YORK.



Side Elevation.

Front Elevation.



Section.

PORTAL TO THE CHAPEL OF THE COLVMN. S. PRASSEDE. ROMA.

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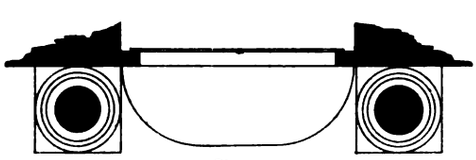

Plan.

Soffit.

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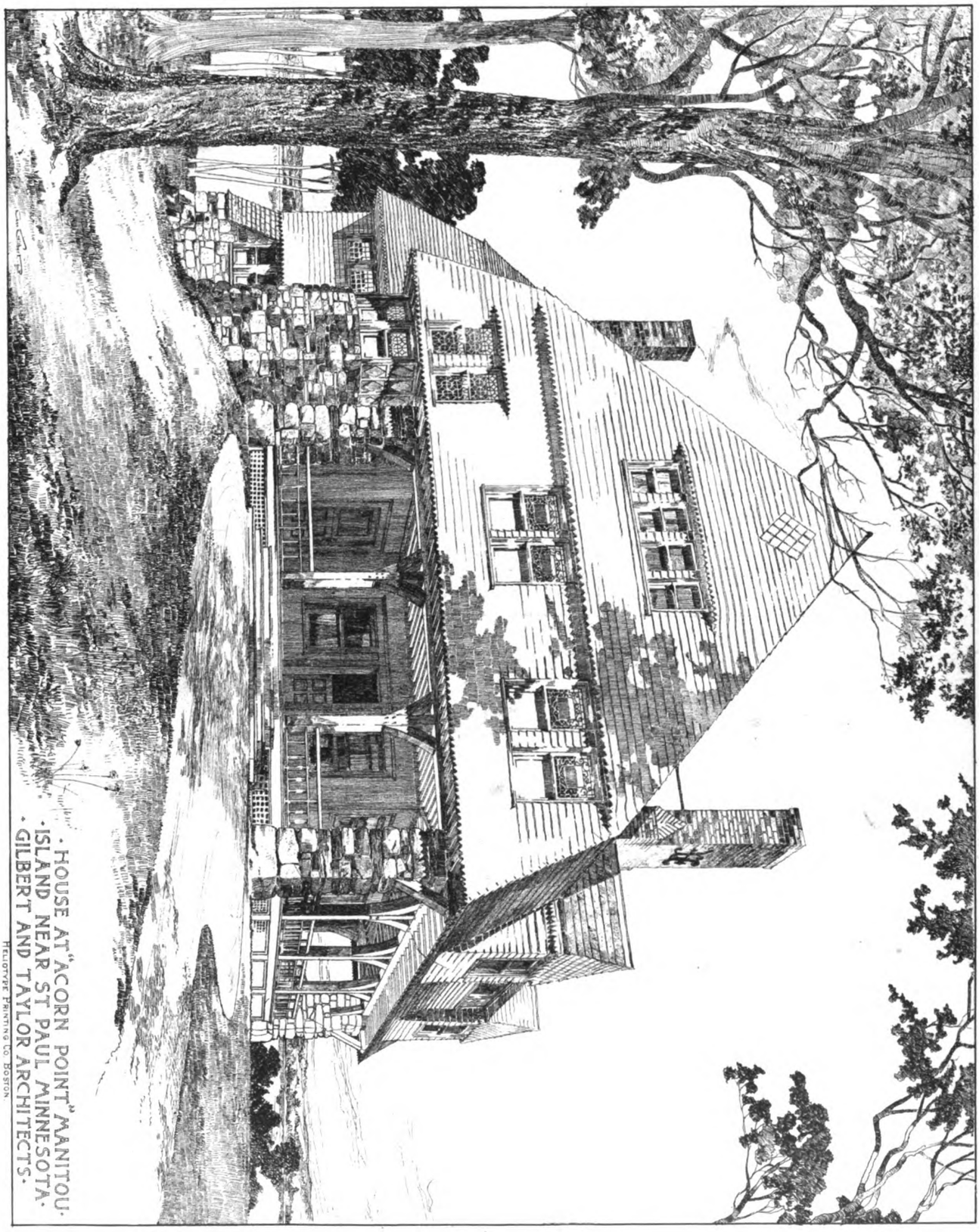

HOUSE AT "ACORN POINT" MANITOU ISLAND NEAR ST PAUL MINNESOTA GILBERT AND TAYLOR ARCHITECTS

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HOUSE OF PROF. ELIHU THOMSON, SWAMPSCOTT, MASS.
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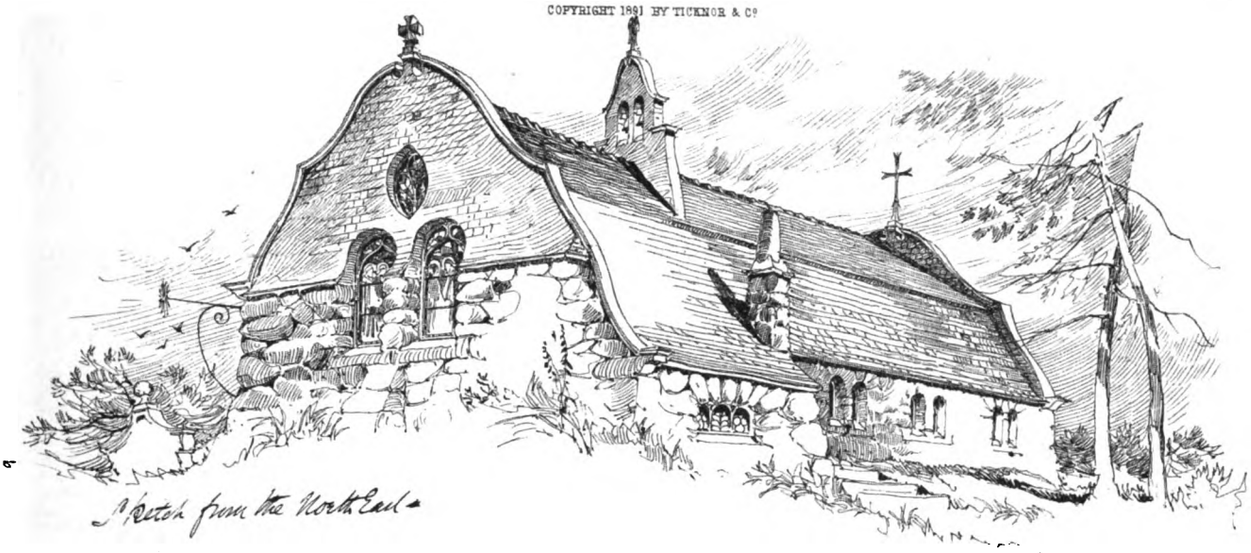
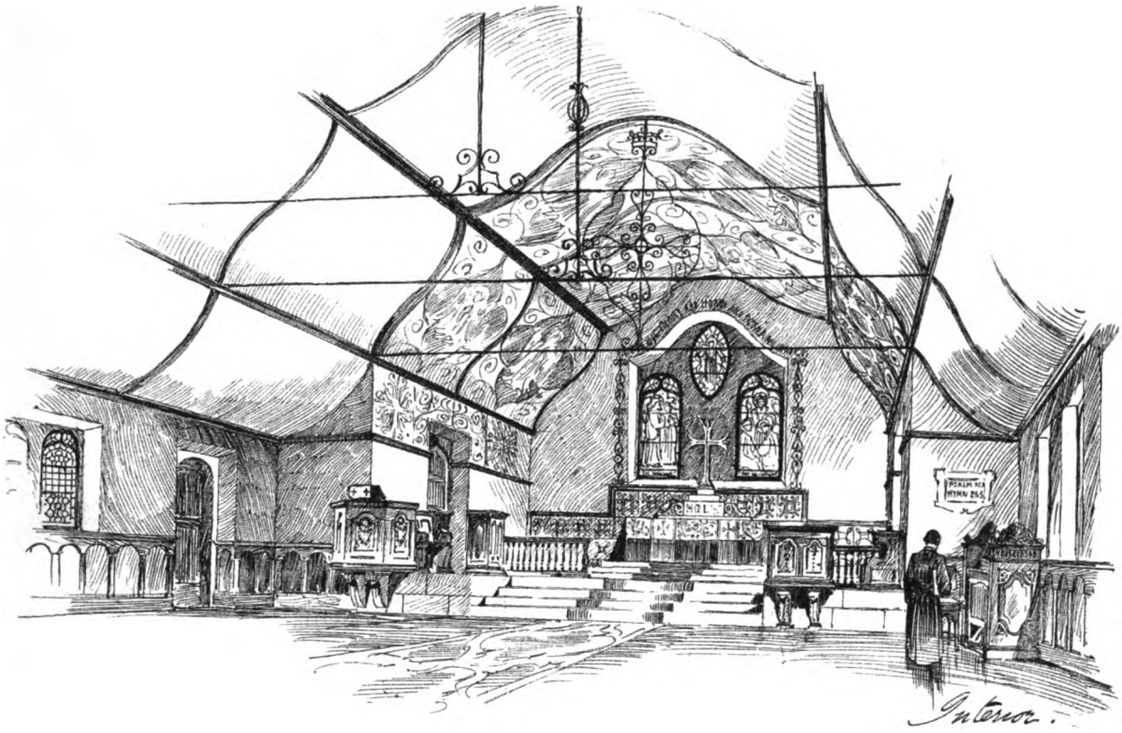
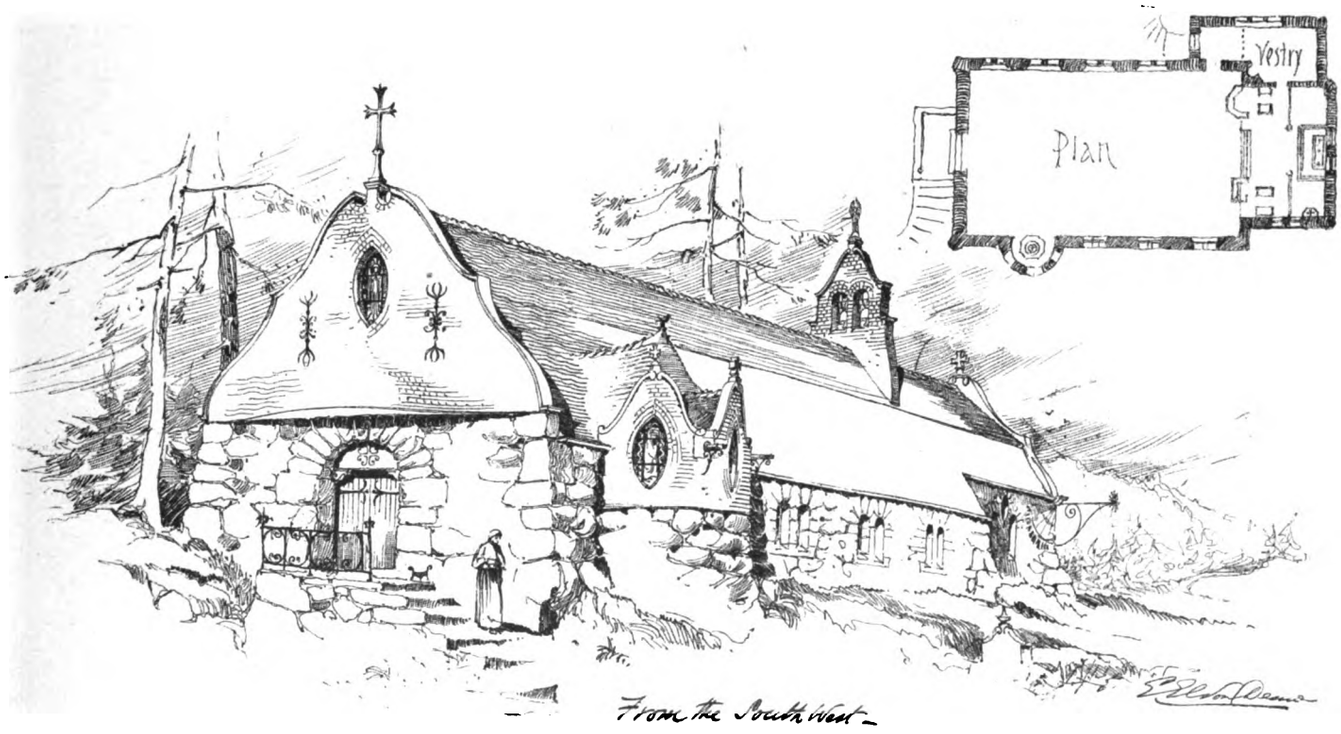


Sketch from the North East



Interior.



From the South West

A · MOUNTAIN · CHURCH ·

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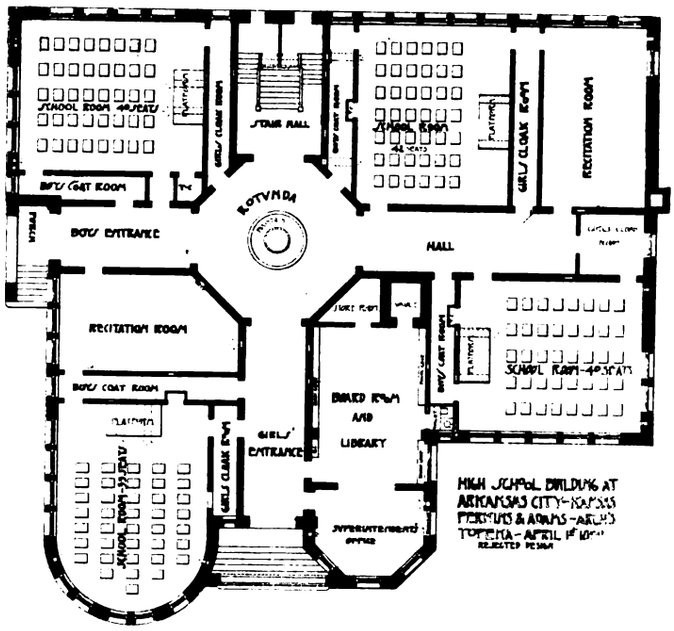

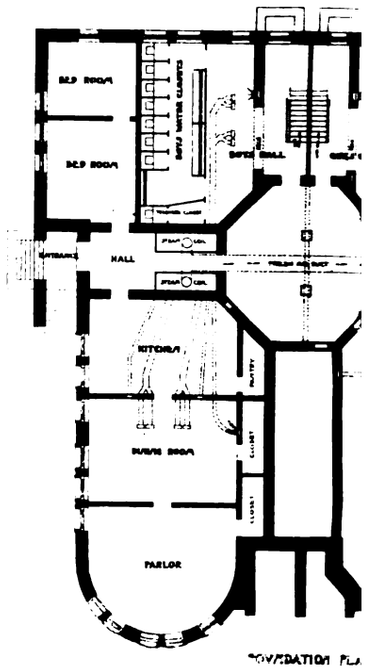

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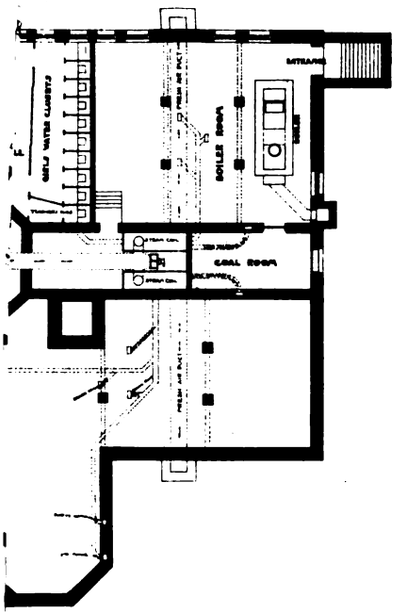
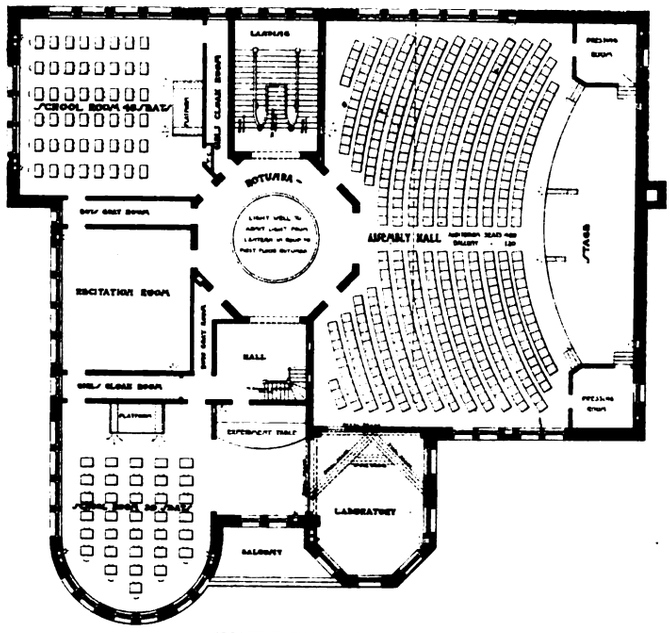
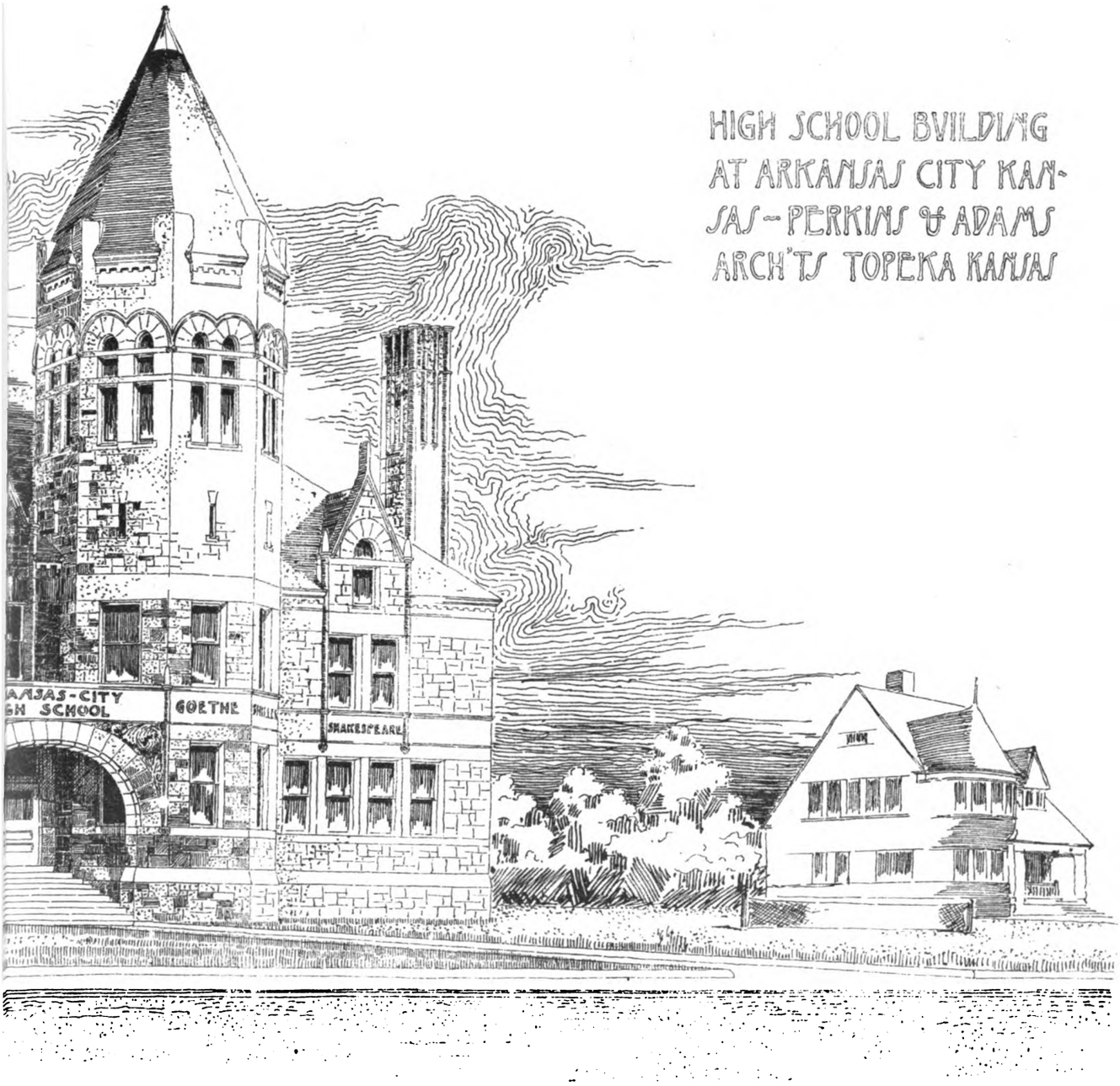




SECOND FLOOR PLAN

HIGH SCHOOL BUILDING AT ARKANSAS CITY KANSAS - PERKINS & ADAMS ARCH'TS TOPEKA KANSAS



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(*b*) The comparatively flat nature of London proper prevents the complete native flow of the outfalls eastward.

(*c*) The tidal nature of the river keeps the water therein on a perpetual swing backwards and forwards, and so prevents the river being used as a receptacle for crude sewage.

(*d*) The distance from the coast renders it practically impossible on the score of expense to discharge the sewage into the sea.

Bearing these four main principles in mind we may, perhaps, be able to grasp the difficulties with which the solution of this great question is attended.

London really had no system of sewage until about the end of the seventeenth century. Even so recently as 1815 cesspools reigned supreme, such sewers as then existed being regarded as simply to be used for the surface water, and these surface-water sewers were constructed, running north and south, to discharge at various points into the Thames as it made its course through the centre of London. Time, however, went on, and gradually these surface-water sewers became used for sewage, until in 1847, it was made compulsory to drain all houses into the sewers. The consequences of this action were, however, very serious. As explained above, the water in the Thames is not continually on the flow from London, but ebbs and flows, backwards and forwards, so the sewage remained in the river in a constant state of oscillation.

Obviously this state of things could not be permitted to continue and one of the first actions of the Metropolitan Board of Works, on coming into power, was to prepare a plan for a comprehensive system of drainage. The Metropolis Management Act, however, required the submission of the plans and estimates of the proposed new sewers to the Commissioners of Her Majesty's Works and Public Buildings. The Board's plan was submitted in 1856, but the First Commissioner declined to approve it and eventually he referred the scheme to three independent engineers, who on July 31, 1857, made a report, submitting and recommending a design of their own. The substituted plans were in turn, submitted by the Board to three other engineers who reported that they were "needlessly large, excessively costly and, as a work of construction, all but impracticable." A long controversy followed and in the meantime nothing was done. The Summer of 1858, however, was unusually hot and the condition of the Thames became exceedingly bad, the continual stench being such as to cause considerable apprehension and alarm among the inhabitants of London. The following extract from a leading article in the *Times* of June 18, 1858, graphically describes the condition of affairs at that time.

"What a pity it is that the thermometer fell ten degrees yesterday! Parliament was all but compelled to legislate upon the great London nuisance by the force of sheer stench. The intense heat had driven our legislators from those portions of their buildings which overlook the river. A few members indeed, bent upon investigating the subject to its very depth, ventured into the library, but they were instantaneously driven to retreat, each man with a handkerchief to his nose. We are heartily glad of it. It is right that our legislators should be made to feel in health and comfort, the consequence of their own disregard of the public welfare. . . . As long as the nuisance did not directly affect themselves, noble lords and honorable gentlemen could afford to disregard the safety and comfort of London, but now that they are fairly driven from their libraries and committee-rooms — or better still, forced to remain in them with a putrid atmosphere around them — they may perhaps spare a thought for the Londoners."

Ultimately the Government decided to trust the Board and on the 2d of August, 1858, an Act was passed which repealed the clause of the original Act, which required the Board to obtain the consent of the First Commissioner of Works before intercepting the sewage from the Thames, and the Board then proceeded to put into execution its own plan. In accordance with this scheme, three main intercepting-sewers were constructed on each side of the river, termed repectively, the High, Middle and Low Levels, and so-called from the relative positions in the gradual slope upwards, north and south, from the bed of the river. Of these sewers, the high and middle sewers discharge by gravitation, the lower by pumping. The northern low level, which we are informed is much overcharged, drains a district to the west of Chelsea and is raised in its course, by pumps at Pimlico, some 17½ feet. These three great sewers on the northern side of the Thames are made to converge and meet at Abbey Mills, West Ham in the East End. Here the whole of the contents of the low level are lifted 36 feet, an operation which involves the consumption of as many tons of coal per day. From Abbey Mills the aggregate stream of sewage flows through the northern outfall sewer, which consists of three culverts carried on a concrete embankment across the marshes to Barking Creek. These culverts are each nine feet by nine feet, placed side by side, with upright sides, semicircular crowns and segmental inverts.

On the south side of the Thames, the three intercepting-sewers were made to converge at Deptford, where the sewage from the low level is lifted by pumps eighteen feet into the southern outfall, and the united streams of sewage flows on in one channel through Woolwich, to Crossness, where it is pumped up into a reservoir in order that the discharge may be made upon the ebbing tide, it being found by experiments that the discharge of sewage at high water at any point was equivalent to its discharge at low water, at a point twelve miles lower down the river and that therefore by allowing the sewage to pass out at high water instead of low, the construction of twelve miles of sewer would be saved.

The following statistics will convey an idea of the magnitude of the main-drainage works:

The total length of the main intercepting-sewers is about eighty-two miles; they are capable of intercepting daily 63,000,000 cubic feet, or nearly 400,000,000 gallons of sewage and the total cost of the works has been about £4,600,000. The average daily quantity of sewage discharged is about 160,000,000 gallons.

The precipitation works and disposal of the sewage will be dealt with in my next letter.

AUSTRALIA

FORMATION OF THE ARCHITECTURAL ASSOCIATION. — COMPETITIONS FOR GOVERNMENT BUILDINGS. — MELBOURNE ANGLICAN CATHEDRAL.—AN AUSTRALIAN BOOK ON DECORATION.

SYDNEY, N. S. W., January 21, 1891.

LAST week saw the formation of the much-talked-of Architectural Association here, which, no doubt, as the country newspapers say, will supply a long-felt want. The Institute of Architects is beginning to make itself felt, and is steadily and quietly doing much good work; but it is not yet numerically strong, and, as its own affairs necessarily occupy a large share of its attention, the interests of students and draughtsmen had partly drifted into abeyance.

The new Association has been born under favorable auspices, and at a time when everything was ripe for its advent, but it must beware of approaching its work in the self-sufficient manner which is so characteristic of the Australian youth. It has in its power to accomplish much, if it does not seek to involve itself in a struggle for supremacy with the representative Institute, for such a course can only end in disaster, for its whole energy will require to be devoted to the object for which it was formed. There is too much dissension already in the architectural dovecote; we cannot afford to indulge in internecine warfare, when so much remains to be done in repelling attacks from without. The Institute, the Architectural Association and the newly-formed society of the members of the Royal Institute of British Architects resident in Sydney have, I presume, one common object in view, viz, the advancement of the profession, and this object can only be obtained by united action. The enmity of individuals and coteries can only serve to delay this accomplishment and retard our progress generally.

The competition for our new Houses of Parliament is shortly to be advertised, and a competition for new Law Courts will, it is said, shortly follow, so there is quite a hum of excitement in the architectural atmosphere. These competitions are the first under the new system lately inaugurated by the Government for allowing all works over £5,000 in value to be competed for by local architects. The Railway Commissioners, some time ago, put this idea into practice, and, as a result, they can point to a Railway Institute, which is just approaching completion, and which, without doubt, is one of the most picturesque buildings about Sydney. The architect is Mr. H. M. Robinson, a former Soane Medallist.

The Roman Catholic Cathedral, St. Patrick's, is to be completed forthwith, the contract having been signed a short time since.

It is said that nearly four and a half million pounds sterling will come into New South Wales during 1891, representing the value of the wool exported last year. If only a moiety of this is invested in buildings, and should the conditions for the Government competitions be equitable, there should be unwonted activity in architects' offices before long.

Now that Melbourne Anglican Cathedral has been opened, the papers are discovering that "it is no more, architecturally, than the common or garden kind of parish-church dignified by the name of cathedral." The church, for some reason best known to the authorities, occupies a position between two streets, which will preclude future enlargements. This may hereafter prove inconvenient to the Anglican community, but it is, at least, a relief to know that there is a probability of there being, at length, *one* complete ecclesiastical building in Australia. The church, which is 277 feet long by 66 feet wide, will accommodate somewhat less than 2,000 people, and has cost already over £115,000 sterling. The architect was Mr. William Butterfield, of London, who resigned some few years back because the committee, as usual, knew more about architectural matters than he did. The building is, however, admitted to be the best example of Early English in the colonies.

Some time ago, I had occasion to refer to the utter vileness of the windows in our Centennial Hall in the columns of this paper. Though I am of the same opinion still regarding them, I must, in justice, say that the fault does not lie altogether with Mr. L. Henry, the artist who designed them, for I have since seen a "process"

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reproduction of one of his original cartoons, and though the design, even there, is not altogether admirable, it is still easy to see that the manufacturers of stained-glass are responsible in a great measure for the wretched drawing and the "thinness" and crudity of the coloring. Mr. Henry, by the way, is about to publish a book on "*Australian Decorative Arts*," illustrated by fifty large plates reproduced by the best processes from his own designs. I must remark, however, that Mr. Henry is not an architect, and I do not imagine for a moment that he expects "to found a distinctly Australian order of architecture . . . which shall be racy of the soil," by merely adapting Australian *fauna* and *flora* as his motives. If, however, he succeeds in sending our students to nature for inspiration, instead of following traditional ornament and the decoration of the schools, he will have achieved more than most men may hope to accomplish.

We are informed by the papers that Mr. Edward E. Raht, the architect-in-chief of the Equitable Life Assurance Society of the United States, has arrived from New York with a view to immediately commencing the erection of office-buildings on the sites recently purchased in Sydney and Melbourne.

THE CHIGNECTO SHIP-RAILWAY. — ANOTHER SHIP-RAILWAY PROJECTED. — MARKING HISTORIC SITES WITH TABLETS. — COLLECTION OF OLD MASTERS ON VIEW AT MONTREAL.

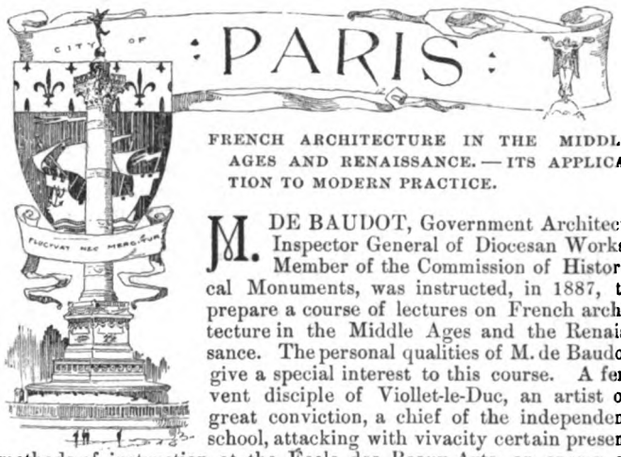
THE Chignecto Ship-railway, which is being watched with such interest from all parts of the world, by engineers and capitalists, is rapidly progressing and during the last month all the works suspended through the winter have been resumed. The masonry of the lifting-dock is nearly half-finished and will soon be ready for the hydraulic machinery, which will lift the vessels from the water to the level of the rails. The Amherst Basin in which the lifting-dock is situated has an area of about 500 feet by 300 feet for vessels. The entrance will be formed of two immense walls, each 100 feet long, running parallel and 60 feet high. The great gates will be a feature of engineering: they will have to support a larger head of water than any gates in the world. At no place in the world is the movement of the tide, where such gates are in use at present, greater than 15 feet. Here the rise is 50 feet and this gate will have to hold up this weight of water against one side, while on the other side there is none.

Another ship-railway in Canada is contemplated for the purpose of shortening the route from the Upper Lakes to Lake Ontario. This, if carried out would create a direct route from Duluth to Chicago, for all grain shipments bound to foreign countries, avoiding great waste of time and also expense, involved by the present waterway through Lake Erie and by Buffalo. It would be 166 miles long and the cost is estimated at $15,500,000, considerably less than the estimates for a canal with the same object, which has been mooted.

The Antiquarian Society, of Montreal, is beginning to erect tablets in various parts of the city, to commemorate historical events and mark historical buildings. They propose to start with about fifty tablets of Italian marble, three feet by two feet, inscribed with the event to be commemorated and put up in conspicuous positions. One of the first to be put up will be to mark the place where the founders of Montreal landed in 1642, under command of the Sieur de Maisonneuve. This is no doubt a good move on the part of the Society and it is to be hoped sufficient funds will be at its disposal to enable it to do its proposed work thoroughly.

There is at present an exhibition of valuable paintings, principally by "old masters," on view in the unfinished church of St. Peter's, Montreal. This church is the Roman Catholic Cathedral, but it requires a large sum of money for its completion. With a view to raising the required funds, Dean Wagner, of Windsor, has lent all the valuable pictures which have been donated to him for the purpose of benefiting his Hôtel Dieu that he has founded in connection with his free school and orphanage for colored children. Many of these pictures came from the Ursuline Convent, at Prag, Bohemia, the late Lady Superior of that Institution having left all the pictures of her rooms to Dean Wagner for this purpose. The present Lady Superior sent about forty others and many have been sent by wealthy people in the neighborhood of that convent. It is a great pity that this exhibition was not advertised to a far greater extent, such an opportunity is rarely, if ever before, afforded to people on this continent and there are many who would have been glad to travel hundreds of miles to see the collection. Among them is a "Crucifixion" by Vandyck; a "St. Jerome" by Tintoretto; "Mater Dolorosa" by Carlo Dolci; a "Holy Family" by J. Sandrart; the "Wedding feast of Cana" and a "St. Paul in Areopagus" by Agostini Ciampelli. A "Portrait of Rembrandt," by himself, a "Madonna," by Amiconi; "Adoration of the Magi" by F. Francois. "Head of St. Francis in ecstacy of suffering," by Ludovico Carraci, and many others of note and value including a painting attributed to Rubens. The Sisters of the Visitation, in Gleinsk, sent a "Madonna" by Wohlgumth, and from the Trappist Monastery of Hohenfurst, Bohemia, comes a "St. Peter," author unknown.

The Royal Society of Canada, will hold its annual meeting this year in Montreal, at the end of May.



FRENCH ARCHITECTURE IN THE MIDDLE AGES AND RENAISSANCE. — ITS APPLICATION TO MODERN PRACTICE.

M. DE BAUDOT, Government Architect, Inspector General of Diocesan Works, Member of the Commission of Historical Monuments, was instructed, in 1887, to prepare a course of lectures on French architecture in the Middle Ages and the Renaissance. The personal qualities of M. de Baudot give a special interest to this course. A fervent disciple of Viollet-le-Duc, an artist of great conviction, a chief of the independent school, attacking with vivacity certain present methods of instruction at the École des Beaux-Arts, an enemy of that which is styled "official art," M. de Baudot was sure of attracting the attention of all architects who concern themselves with the questions of art and curious to listen to a master who sets out his theories with conviction, warmth and persuasiveness. These discussions in the hall of the Museum of the Trocadéro, in the midst of the souvenirs left by Viollet-le-Duc, with, close at hand, the marvellous models of the finest specimens of our national art, refresh the mind, wearied with the dry details of the profession and annoyed by its practical requirements, and make more perceptible the charm of the artistic side of our profession.

If we have not yet spoken of this course the reason is, that until this year M. de Baudot, after having gone over the art of the Middle Ages and the Renaissance, had not reached the conclusion which we were waiting for with impatience, knowing the programme which he had imposed upon himself. This programme consisted in the study of the method of composition followed by the architects of the Middle Ages and the Renaissance, in order to reach at length its application to the solution of modern problems. In the first place M. de Baudot was induced to take up and comment on the work of Viollet-le-Duc and study the different schools of the Middle Ages. He showed the influence exercised on each of them by the requirements of style, climate and the materials which were at their disposal. It is thus that the Provençal school in the churches of St. Trophime at Arles and St. Gilles reveals a Gallo-Roman influence which it owes to its geographical position, and also in the sculpture the Byzantine influence which the school of Languedoc felt still more, as is testified by the Abbey of Moissac, St. Bertrand de Comminges and St. Sernin at Toulouse. The school of Perigord, of which school the Church of St. Front at Perigueux is one of the most curious monuments, marks in even a more emphatic manner the Byzantine influence which is also found, although attenuated, in the school of Poitou, which is brilliantly represented by Nôtre Dame la Grande at Poitiers and the Cathedral of Angoulême. But it is not the intention here to narrate anew, even in epitome, these discourses of Viollet-le-Duc, rejuvenated and modernized in some sort by M. de Baudot. It is enough to say that he has carefully studied all these schools, and developed in a very interesting manner their different systems of construction. In his final comparisons with our present methods, which did not lack a spice of malice, M. de Baudot made apparent the advantages of the methods employed in the Middle Ages for the construction of buildings. Too often, in his opinion, the ability for drawing which numberless modern architects possess disguises, under the charm of a drawing of an enticing composition, the lack of study in the employment and arrangement of materials. It must, indeed, be confessed that architects nowadays too often seek after an effect without concerning themselves with the manner in which this effect can be built. M. de Baudot regrets this general absence of ratiocination which allows materials to be used haphazard, without method, for the mere sake of copying style or introducing a form of detail or of decoration, which will be insisted on at any cost whatever, at the sacrifice of all logic. Perhaps architects do not altogether merit the reproaches which M. de Baudot heaps upon them. When an architect preserves a certain liberty, when he is stopped neither by regard for the interests nor the irrational demands of his client, whose caprices he must satisfy, we all know that he can accomplish a more truly personal work. But M. de Baudot especially directs his attack against monumental architecture, that which history will disinter and dissect to derive from it instruction and documentary evidence. He finds instruction of great value in the Gothic monuments and the monuments of the Middle Ages, which in general answer to the conditions which an edifice must satisfy if it would truly

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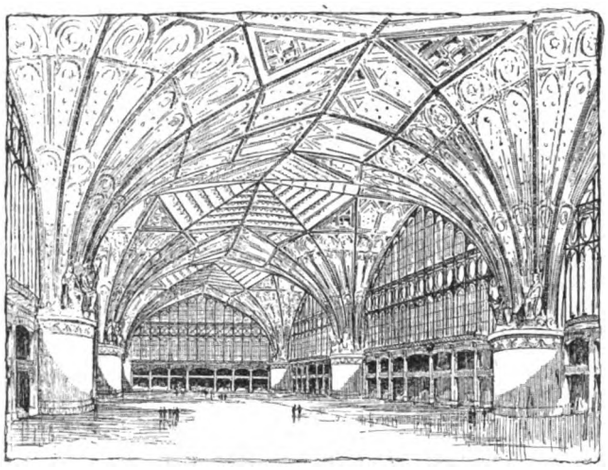
be a work of architecture. These monuments, in short, rest on a logical system of construction. They present arrangements which result from the plan itself, and their decoration is proportioned to the materials which are employed in a rational and economical manner. It follows that Gothic architecture must be taken up again, and this theory, far from enabling an advance, may it not make us



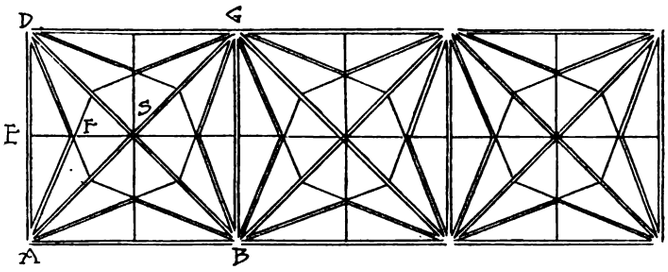
take a step backwards? Quite the contrary. It is not a question of applying the Gothic method to new Gothic edifices, but of penetrating ourselves with this method and applying it to the working-out of new solutions required by new programmes and new materials. These new materials, the principal of which is iron, must not be used to reproduce forms compatible with other materials, but incompatible with the material of which they are actually composed. By logical deductions drawn from the methods of composition in the past, it must happen that by the means of the new elements which are at our disposal, there shall be created new methods and a style specially adapted to them.

Such is the end toward which the efforts of modern architects must tend, and to reach it M. de Baudot considers that it will be enough to *reason* about that which one is building. Now do people reason about the employment of iron? Up to the present time, no. Finding themselves face to face with an elastic and powerful element, use has been made of it to span the greatest spaces, or to support and reinforce other materials upon which they desired to impose forms which they were themselves incapable of assuming. So it has been concealed in stone and hidden under plaster. It has been the real element of construction only in market-halls, railroad-stations and factories. In these cases it is used in a brutal fashion, exclusively scientific and material in its application; proceeding from a single point of departure, and ending in one and the same formula; that is, in the solution given by the accurate calculations of the engineer. At the side of this mathematical precision must be introduced the artistic education of the architect. If he has carefully studied the constructive methods of the Middle Ages based upon the elasticity of structures, he can in no small degree contribute aid in the search after forms proper to give to an element so elastic in itself as is iron. M. de Baudot, struck by the comparison of the elasticity of iron and of the vault, built with transverse arches and wall arches, divided into triangles by diagonal arches, has from it arrived at the conclusion of which we were speaking a moment ago, and this is the culminating point of his lectures.

The effort exhibited at the Universal Exhibition of 1889 in the marvellous Machine Gallery vividly impressed M. de Baudot, but, in his opinion, this effort, a hasty one by force of circumstances, only produced an incomplete result. That which he particularly finds fault with in this work is its lack of scale, which diminishes the effect of grandeur which ought to have been produced; its indefinite repetition of the same truss forming a hall which has no beginning

nor end, — in fact, to employ a popular expression, there is no reason for its finishing at all. There are a great number of buildings which present the same disposition. The entire interest, a scientific interest, limits itself to this result: to cover a space of 115 metres' span, without any point of support, by means of a single truss. This is certainly something, and it would be unjust to cheapen one's admiration for the work of the designers of the Machinery Gallery.

But, M. de Baudot asks, whence comes it that, all the proportions being preserved, an edifice like the Cathedral at Amiens, which is only thirty-two metres high and sixteen metres wide, produces an impression of greater grandeur? The reason is that in this monument, as in others of the same kind, the detail, the disposition, everything, recalls the same scale, and this is absolutely wanting in the Machinery Gallery. M. de Baudot also, on the other hand, makes this judicious remark: that the architects of past times, whether they were Greeks, Romans, Byzantines or what not, when they had to span a space in one direction, also spanned it in the other; and then naturally arises the question: Why could not these 115 metres of the Machinery Gallery have been covered on a square plan? Preoccupied with this idea, like a conscientious and thoroughly convinced artist, M. de Baudot has pushed his study a little farther, and has had the curiosity to make for his hearers a complete *projet* of a machinery gallery arranged according to his theory. It is this scheme, extremely interesting, that its author has been willing to communicate to us, and of which the *American Architect* has the first notice. And, first of all, we must state with exactness its author's intention in exhibiting this work. He does not pretend, with this study, to give a new and much-desired formula, which he complains of not having discovered in the work of others. He denies, with much modesty, having invented a disposition which has really been given to him by reasoning and logic, taking as his point of departure a truss of 115 metres' span, of which he is not the author. He has simply desired to show that this point of departure might lead to less commonplace solutions, and this very fact is a tribute paid to the constructor who opened the way to him, and for whom he professes a sincere admiration. To this work of the engineer (in this case, however, due to the brain of an architect, M. Dutert) M. de Baudot would simply like to add a little art, which, by transforming it, might give it more grandeur, and make of it a veritable piece of architecture. He has, therefore, taken trusses of 150 metres, such as exist in the Machinery Gallery, and has used them as the two diagonal arches on a square plan of about 81 metres



PLAN DE LA VOÛTE.
AG. BD. = 115 MÈTRES.

on a side. It is these trusses which form what we may call the transverse arches, the wall arches and the intermediate ribs of the new vault. And this permits us to have a regular and easily-decorated formula. But this disposition, on the other hand, brings about a break at the point "F," the three points "F," "F," "S," not being of the same height in consequence of the different lengths of the trusses. We give the plan of the trusses and the exterior and interior views of this *projet*, which has certain advantages, from an artistic as well as practical point-of-view, over the Machinery Gallery. It must first be observed that the gallery thus presented is only 245 metres in length, while that of the Machinery Gallery measures 420, and that its depth is 80 metres only. The dimensions are, therefore, much smaller, and yet the effect produced is proportionately greater. This arrangement better lends itself to decoration by its full vaults, which also allow of better ventilation, one of the great inconveniences of the Machinery Gallery, lighted from the top, being that it was either too cold or too warm. The vault of M. de Baudot is protected from the external air, since an empty space, the height of the truss itself, separates the filling which forms the surface of the vault from the roof proper. The lecturer had arranged about his nave piers of masonry enclosing staircases which reach to the interior and exterior galleries, without counting the one which, higher up, forms a balcony all around the building.

I must do justice to the good arrangement of the gables, whose filling of iron work, consisting of a regular series of arcades and rose windows, is independent of the truss, and does not have the appearance of supporting it, as was the case with the Machinery Gallery. But we must not stop too long over matters of detail. It would be easy to formulate some criticisms, and ask, for example for angle motifs better accented and better re-enforcing the *ensemble*, so as to give it a better silhouette and more firmness. This is not the question, however. The interest rests on the fact of the new solution brought about by logical reasoning upon a method of composition. Calculations which M. de Baudot has made, allow him to affirm that the weight of iron employed would be almost identical in arriving at this grander effect. He only speaks here of the cost of the iron, and we might question whether this solution, evidently more artistic, might not be more costly. An important matter would be the method employed for filling the vaults. This is one of the most delicate matters. M. de Baudot believes that they could be formed in panels of concrete, with an imbedded metallic tracery of iron

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work. Experiments have in fact been made with this system, which has allowed the construction of vaults of a thickness of only three centimetres and yet offering a considerable resistance. But it is not a matter of great importance, and has nothing to do with the principle which has guided this study, which was in great part theoretical.

A programme has been chosen which falls outside of ordinary needs, in order to make the teaching more impressive, and the lecturer has confined himself, in taking his point of departure, to an element of construction which already exists — the truss of 115 metres. He has desired to show that this new element, powerful and elastic as it is, must lead to results differing from those which we are acquainted with up to the present; and in order to reach these results it is only necessary to apply reasoning to the new element, and not confine it to reproducing at a greater scale forms similar and analogous to those which are already known. The method of composition which he has applied to this transformation of the Machinery Gallery can be applied to any construction whatever. This is the interesting point and the one which must be remembered, for the difficulties which are presented in the execution of so costly a work as the Machinery Gallery would disappear when it became a question of a more everyday, more detailed and more complete building; but the principle remaining always the same, its application will give rise to new architecture, of which the *projet* of M. de Baudot is not the formula, but for which it can indicate the way and encourage others in the search.

THE ORANGE EXHIBITION. — EDMONIA LEWIS'S "CLEOPATRA." — REBUILDING "THE FAIR." — THE ARCHITECTURAL WORTH OF OUR GREAT BUILDINGS. — URBAN IMPROVEMENT CLUBS. — SMOKE-ABATEMENT. — THE PUBLIC LIBRARY. — CHICAGO UNIVERSITY. — THE LABOR QUESTION AND THE WORLD'S FAIR.

A NEW architectural feature has been seen in Chicago this last month, and this time the idea originated in the "Glorious State of California."

The old Exposition Building has been made gorgeous by an orange carnival and exhibit from the sunny southern counties of the distant land, one of the most attractive features (after the sweet orange cider) being the architectural efforts of the exhibitors, miniature reproductions of various buildings all made of the golden fruit. Whittier County's building is of no aspiring style, being only the representation of the old well and sweep of the poet's "*snow bound*" New England farm-yard, though before the cadmium-hued curb and sweep with the cotton snow hanging from it, imagination has to do its utmost to realize that

> ". . . its slant splendor seemed to tell
> Of Pisa's leaning miracle."

The Red-land "Bear Valley Dam" had little that was characteristic in the mere wall of oranges, but Pasadena's fifty-foot tower rising in the centre of the exhibit all constructed of oranges was quite a success. The Los Angelos "County Court-house" reproduced chiefly in small tangierines was very successfully managed, as well as a "Turkish Mosque" from Duartes County. The most successful reproduction, however, and the one where the character was best preserved, was the old "San Gabriel Mission."

Not connected with the orange show, but in a dusky and dusty corner of the same part of the building is an object to be glanced at casually and wonderingly. It is the Carrara marble "Cleopatra" of the little sculptress Edmonia Lewis. The figure is not by any means a wonderful production, but certainly good enough to deserve a little better treatment than to be hidden in the dust of this particularly dirty locality. The marble is so begrimmed that it scarcely is recognizable as marble, the end of the tapering sandal is broken, several fingers and toes are missing, and after a few months more of such usage, there would be a chance for restoration as of a veritable antique. Perhaps the Exposition managers are planning for such a result, and expect to bring the work before the public again, with added worth, though perhaps fewer phalanges, as coming from some recent Egyptian excavations. Chicago will stand, is accustomed in fact, to a good deal of general brag and presumption, but this sort of thing would be a little more than they could bear, as younger people than the oldest inhabitant remember when they paid their extra quarter in the early Exposition days, to look upon the same white queen and to have a chat with her dusky-hued creator, who sat by her side. Her ignominious position among the oranges is not the lowest place to which the mighty has fallen, for at the "fat-stock" show she could be found hustled off among the boxes and stalls. The proud daughter of the Ptolemys seems to be claimed by no one, and one wonders whether even Miss Lewis has lost all interest in her. There are certainly many places where she could fill a long-felt want, and once more become quite a "leading lady." The statue would most assuredly be more appropriate in the Newberry Library than the huge and poor picture of one of our prominent society women, now conspicuous in World's-Fair circles, which graces the walls of the auditorium of that edifice.

One of the most unusual experiments in building here at present is the manner of erection of the mammoth structure to be occupied by the huge department store which is known as "The Fair." The manner of erection is at present its most interesting feature, the work being done in sections. The old building was divided into eighths, each section, we are told, being seventy-four by ninety-two feet. One division at a time is being taken. First, excavations are made under the present building, a very low and light structure, to the depth of fourteen feet below the sidewalk-line, the old structure being supported in the meantime on jack-screws. The steel foundations are then laid for the new building. When this is accomplished the section of the old building is torn down and the new one run-up four stories. When these are finished they are immediately occupied, and another section is taken till the entire lot is covered with a four-storied building. This is then roofed or floored over and the other stories progress in the usual manner of work, while the store is occupied as usual. According to first report it was to be the largest mercantile building in Chicago, if not in the world, and was to cost three million dollars, being sixteen stories high and occupying an entire half square. If we can judge from the published newspaper cuts of the sixteen-storied building, the change of plan to an eight-storied one will be an improvement. Eight or sixteen, it resembles many of our gigantic structures in being serenely plain, a triumph of engineering rather than architectural skill.

This kind of building is constantly increasing in Chicago, and as mentioned in a previous letter it is a question, which is at present far from settled, how much these structures will add to the health and beauty of the city. The streets in their immediate vicinity must become extremely damp and cold, the sunlight penetrating into them during but a few hours out of the twenty-four, and in this particular, if in no other, we may possibly learn the folly of these towers of Babel. Some members of the Real Estate Board have tried to prove that streets between these high buildings are lighter than between low ones, on account of the large expanse of glass with its reflective properties. This theory is ingenious, but unsatisfactory. Certainly no one can argue that such buildings as the Monadnock, the Monon Block, the Old Chamber of Commerce Building, the Tacoma and others are artistic. A smile often passes over our faces as we show strangers our wonderful buildings when, with few words of admiration, they immediately fall to counting the stories. Why smile, however? This counting of windows is the only appropriate thing to do, before these many storied monstrosities. In the majority of them, there is absolutely nothing to admire. As has been suggested in communications to the daily papers, it seems a pity that so glorious a chance to become justly celebrated, should be so ignored by many of our leading architects. Fra Lippo Lippi's motto: "If you get simple beauty and nought else, you get the best thing God creates," would hardly do for the working device in the erection of our great mercantile houses and other large structures. Utility must, of course, have the lion's share, but when it comes to combining it with beauty, in extremely high buildings, whose every inch of area must be used, every designer must recognize it as the most difficult of modern problems. Every one admits that the interior of the Auditorium is a most successful building, but it also is as fully admitted by the public in general, that the exterior is not all that could be desired. Many of the large apartment-houses of the city would come under the present criticism, so far as their exteriors are concerned, charming and pleasant as may be the interior arrangement, and is not the time soon coming when instead of our pride, these structures may be our shame? Can we not to a greater extent combine the element of beauty with their size and utility, for then we could well point to them with pleasure?

An association has recently been formed here very much on the plan of the village-improvement societies of our small towns. Eleven clubs are represented in the movement, each of them having three delegates. The object of the association, taken from a draft of a plan made out by a committee on organization is as follows.

1. "To coöperate with and support the constituted authorities in all practical ways in securing the observance of municipal requirements pertaining to streets and sanitary regulations."

2. "To aid in creating a more vigorous public sentiment in favor of beautifying the city and increasing its attractiveness."

3. "To urge the adoption of such new municipal regulations as shall be found necessary to restrain street encroachments and secure the fullest protection and freedom in street travel."

4. "To suggest and encourage plans for embellishing the city."

5. "To enlist the coöperation of citizens and corporate bodies, through the means of examples, complaint and active endeavor in maintaining cleanliness in streets and alleys; in securing the removal of unsightly objects and structures; in abating practices and nuisances injurious to the good name of the city and in such general improvements as shall tend to impart attractiveness to its public thoroughfares."

It seems possible that this association might accomplish something in our very poorly controlled streets and highways. Dirt under foot and above head is the order of the day in our city, and if one does

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not realize it down in the thoroughfares, he has only to mount to the Auditorium Tower and look down on the "world we live in," to realize the density of the atmosphere we breathe.

There have, however, been some results from the efforts of the Smoke Inspector, as shown by his report this year, though few people realize that much has been accomplished. The statistics of his report are as follows.

Violations observed	3,215
Notices served to abate nuisances	2,186
Nuisances abated	746
Suits prosecuted	485
Cases fined $50 and costs	299
Cases fined $100 and costs	1

In spite of the dirt, smoke and confusion which accompanies the practical side of Chicago, the more artistic side is steadily growing, and the Art Institute is fast becoming a school of no mean reputation. A new system of prizes has been recently established at this institution. At the end of two years, students who have successfully followed the course are to receive diplomas, a silver medal going to the most successful worker. Honorable mention will be bestowed when deserved, the same honor to be conferred on the antique class, and prizes given to the Saturday morning juvenile class. The Art Institute already exerts a strong influence on the artistic education of the city and it is to be hoped that it will continue to be a power that will make still larger results.

The Palette Club, the women's artist association of Chicago is at present holding its annual exhibition within the walls of the Art Institute. The exhibition is one of exceptional excellence and if we can judge the ability in the men's artist's club from an exhibition recently given in its own rooms, the club will have to look well to its laurels if it does not wish them borne off by its fair rivals. Indeed there are many already who, if they were making a search for these immortal *greens*, would only hunt for them among the Palettes.

As previously mentioned there is some talk of turning over the Art Institute to the city. It always seems questionable not to leave well enough alone, especially when it is a matter of inviting municipal authority into a heretofore successful management. The Public Library seems to be but little affected by city politics, however, and the Art Institute might be kept equally free from them.

For the last few years the Library has had temporary quarters in the City-hall, but the much-talked-of building is now on the eve of construction. We can only hope that our discussions concerning the building may occur before it is erected rather than after, as in the case of the Boston Public Library. Chicago is so well acquainted with Librarian Poole's advanced ideas concerning library buildings, that it is to be hoped that the requirements of a library will be the first question that the architects will have to solve, while architectural effect will be subservient to them. It is reported the ground will be broken next October, though that, very probably, is rather an early date, and it is hoped that the building will be completed by 1895; but everything, so far as the public are informed, is at present very uncertain. The site of the proposed edifice will be a *part* of Dearborn Park, a square in the down-town portion of the city, since according to legislative grant, a soldiers' memorial-hall must occupy one portion of the square. A bill recently passed in the Legislature authorizes a levy of a two-mill tax, which it is expected will provide for the running expenses and leave a surplus of about $1,500,000, for building purposes.

Another large building or group of buildings of a somewhat similar public character will be those of the Chicago University, now in an embryo state. Mr. Rockefeller, the Standard Oil magnate, heading a large number of public-spirited men, has come forward, and given for the founding of a university in Chicago a very princely sum. The committee in charge have recently decided to ask six of our leading architects to make drawings showing the location on the grounds of the various edifices, and the elevations of a university recitation-building and two dormitories. The architects are asked to locate on their plans the sites for the other buildings, which will include the large administration and recitation building, the library, chapel, gymnasium, observatory, chemical and physical laboratories and a number of domitories.

The plans will be paid for and will become the property of the Trustees. From a study of all the plans, a decision as to the arrangement of the buildings will be made, and the choice of the architect will then follow.

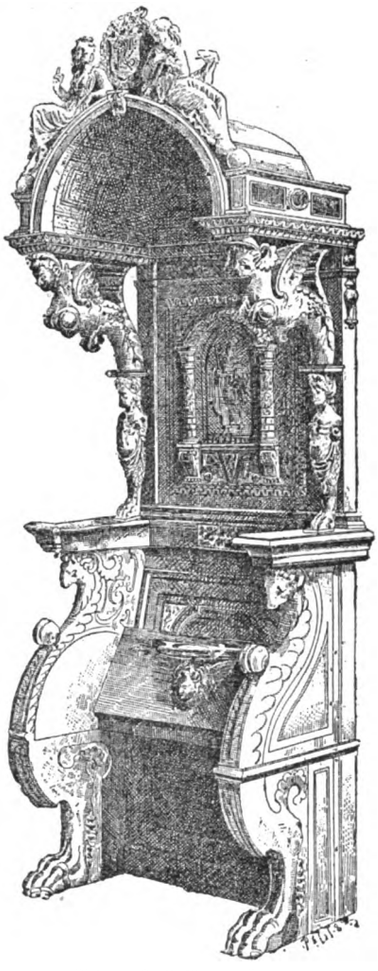
The two most important and interesting items in World's Fair circles this month are the conclusions to which the committee has come regarding the labor question and the rules governing the State exhibits.

The request for eight hours' time is the only demand that has been conceded to the labor organization by the committee, and this has been simply reaffirming previous actions. The most important part of the report of the committee is the following: "In regard to incorporating in agreements with contractors a minimum scale of wages, your committee desires to state that they have given careful attention to the arguments, printed and oral, submitted by the representatives of the labor organizations, and much consideration to the reasons presented why a mininum scale should form a part of said agreements, but, so far, the reasons and arguments presented have not been sufficiently conclusive to convince your committee that so important a departure from established usage should be made by the Columbian Exposition Company." In conclusion, the report of the committee was unanimously accepted, the committee discharged, and it is to be noted this action was taken at an unusually full board-meeting. Thus the Directory has unequivocally committed itself to a line of action, from which they probably cannot be forced to recede. It goes without saying that the "minimum" rate of wages is a very deceptive clause, since with the labor agitators it could mean nothing but the Unions' highest schedule wages. The labor organization is prepared to fight for its demands to the bitter end, and at a recent meeting concluded "to take into consideration the necessity of applying to the City Council and the State Legislature to begin action towards securing a minimum rate of wages, eight hours and arbitration." Further, the Labor Committee stated that "Inasmuch as the City Council and State Legislature have become financially interested, we consider that we have a right to say what should be done with the money raised. We will ask the Council to indorse eight hours and arbitration, and request the Directors to reopen negotiations with the representatives of labor with a view to satisfactory adjustment of the question of the minimum rate of wages."

Who will come out ahead it is hard to tell, but for either party it will be a "famous victory," and will decide in a great measure the future strength or weakness of the labor organizations in Chicago.

The sum and substance of the rules regulating the State exhibits is that, first, the plan of the especial building shall be approved by the Bureau of Construction, the allotting of the ground for the building shall be sanctioned by the Director General, and among the exhibits no manufactured goods shall be permitted except "potted, canned or preserved fruits and vegetables, produced in the particular State."

THE HOUSE THAT JONATHAN BUILDS.[1]



Bishop's Stall, Vienne, France.

OF the early works to which I refer but few examples remain to us, but those few examples have been so well taken advantage of by the native architect, have so impressed him as being the representative of the only mitigated antiquity to which his country can lay claim that they have modelled to no inappreciable extent American architecture of to-day. You would be surprised if you could see what good eighteenth-century work there is to be found in America. The city-halls of New York and Philadelphia, and certain churches in Maryland and Pennsylvania, are models which could afford valuable hints to the most devoted and learned student of Wren and the Queen Anne architects of our own country. Nor is the old domestic work which is to be found everywhere throughout the more early settled States, such as the old manor-houses along the valley of the James or the Hudson Rivers, and a few of the older city houses of Boston, New York and Philadelphia, to be despised. A quaintly free Classicism; an ingenious use of wood, where stone or brick in this country would naturally have been used; a refinement and grace of detail, carving and moulding mark the work of this period, which, for want of a better name, the American architects have dubbed Colonial — a term which, at least, is more comprehensive and founded more on actual fact than our terrible misnomer of "Queen Anne." About the beginning of the present century, however, architecture became practically a lost art on the other side of the Atlantic, and it was, in fact, not until towards the close of the sixties that any real and healthy regeneration took place.

No one in the world knows how to live better than the average American. I mean the Americans of the Eastern States, be it understood most distinctly; for I will not deny that in the far-off West, the South and the Northwest there are certain crudities and roughnesses which are apt to set cultured teeth on edge. The New Yorker

[1] A paper read by Mr. H. Townsend before the Architectural Association, March 20, 1891.

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and Bostonian, and, to a less marked degree, the Chicagoan also, are cosmopolitan in the truest and most admirable sense of the term. They have taken something of the best from every nation of the world; a hint here, an idea there, a suggestion from somewhere else, and the result is that they are better housed, better fed, better amused, better warmed in the winter and cooled in summer than any European or any Asiatic.

Take the ordinary house of the middle-class American and compare it with the building of the same class on this side, and I think the odds will be found to be very largely in favor of the former. It is, in the first place, if a city house, better and more conveniently planned. Domestic service is an expensive luxury in New York, the result being that everything which will reduce household work to a minimum and render friction as non-existent as possible is a distinct pecuniary advantage, and worth taking a great deal of trouble to attain. My experience has therefore been that in most American houses of the class to which I refer, the relation of the domestic offices to the living and reception rooms is much more carefully studied, with the result of a vastly greater convenience both to servants and their employers. Such little labor-saving devices as lifts, or dumb-waiters, for the raising of dishes from the kitchen to the dining-room, or for the sending down of soiled linen and so forth from the top of the house to the basement, are much more universal there than here. The interior arrangements of the kitchen also compare most favorably with the domain of the London cook. The comparative advantages of English and American kitchen-ranges are not for me to discuss, but there are certainly less trouble and less work connected with the latter than with the former.

There is one point, at least, in which the American house compares absolutely favorably with the English, and this is as regards the heating systems employed. Americans are exposed all over their vast country to extreme variations of temperature. They have accordingly been forced in self-preservation to so construct their houses that they shall be habitable when the thermometer is in the neighborhood of zero, and at the same time shall not be too stifling when the temperature is semi-tropical. We in England, though we may not be exposed to quite the same variation, have something of the same nature to contend with. But we do not set about it (or at least have not for a great many hundred years) with the same reasonableness as the American. To all intents and purposes it is practically as cold when the glass is at 32° as when it is from 10° or 12° or even 20° below that point, and yet it seems to me the average English house is built for summer alone, and as though no such thing as winter existed. Since I returned home, at the beginning of this winter, I have hardly known what it was to be warm within four walls, whether of a house, a theatre, or any other public building, unless I were standing or sitting within two feet of a blazing coal fire. Now, the American goes to work to warm his house on a very different plan. It has required no very peculiar Yankee ingenuity on his part, no very serious scientific study of the question; he has simply said to himself that in order to be warm in his house he must warm the house itself, and not the separate rooms thereof only. It is this fundamental principle which makes so great a difference between one's winter comfort in the two countries. I need not dilate upon the various methods employed by the American to attain the desired end, but I should like to momentarily take up the cudgels in defence of the much-abused system of hot-air heating. The stories one hears of oppressive floods of baked, scorching air, which are supposed to form one of the horrors of Yankee life, if the tales of some returned travellers may be believed, are, in my humble opinion, sheer and undiluted nonsense. The average American house is heated, not by baked air, but by warm air. Pure fresh cold air is drawn into the basements, heated to any degree which may be desired by an ingeniously-constructed furnace, and discharged through tin-lined ducts into every room and every passage of the house. The cost is trifling, the system is easily regulated, is absolutely safe, requires but little attention, and results in a degree of comfort of which you can form no idea until you have become habituated to it.

This thorough and universal heating of a house disposes to a certain extent of another problem, which seems to me as unsolved to-day in this country as it was a decade ago, though it has been one on which a vast amount of talk has been expended, and about which volumes have been written. This is the problem of effective ventilation, and, as I say, it disappears almost entirely when one has to deal with a house the air of which is throughout of one universal temperature, and which does not practically consist, as does the English house, of a series of more or less efficiently heated rooms, separated from each other by halls and passages of semi-arctic temperature. Something more of material comfort, too, is the result of these thoroughly heated houses. One can practically abolish doors, save for the purposes of securing privacy, and the whole ground-floor of a house may, therefore, be thrown into one, and much valuable space gained for living purposes, which in this country would be wasted on passages and hall. Most charming effects are gained in the smaller city houses of America by this means, rooms being thrown into one by the raising of a *portière* or curtain, and charmingly artistic vistas being thus gained. It has also led to the practice, which is an admirable one, in a country where the average building lot is never more, and frequently less, than twenty-five feet in width, of placing the staircase-hall in the centre of the house, with the rooms rear and front opening into it and connected by it.

But the average American of moderate income does not live in a house at all. I don't mean he camps out in a tent, or that he is altogether homeless; he lives in a flat, and I can quite understand the shudder of disgust with which this announcement will be heard by those whose notions of flat-life are gathered from that system as developed in London. A Londoner said to me the other day that in London a flat was looked upon as a luxury. If this is so, all I can say is that London ideas of luxury and my own notions of the same article are several miles apart. The London flat is a creation of the last ten years, and among the many sins for which that decade has to answer at the Last Day it will, I am sure, be held the chief. The better class of New York flat has its disadvantages, it is true. What is there in this decidedly second-rate world of ours which has not? Take it all in all, however, it is as convenient, comfortable and economical an abode as intelligent man has yet devised for himself. By its means the New Yorker is enabled to live in a fashionable or convenient neighborhood in a house — or, at all events, in a portion of a house — built in a style comparable only to those of the richest of his fellow-citizens, and he pays for it the rent which he would have to pay for a small house in an inconvenient and distant suburb.

Architecturally, the apartment-houses, as they are termed in New York and the larger cities of America, are among their most admirable features. They are run up to a somewhat alarming height, it is true, for though land in New York is dear — dearer even than in London — the atmosphere is free, and of this fact the American has taken advantage. But he has not thought it necessary to build a jaundiced-looking barrack with oblong holes punched into it in place of windows, as one wicked individual, at all events, has done in London; and this abnormal height is, from a practical point of view, a matter of little moment, for when one ascends to one's apartment in a lift or elevator, as in Yankeedom it is termed, it matters little whether one stops at the third story or the thirteenth. The average number of stories, however, does not exceed nine or ten, and it is a significant fact that the rents are very often in direct proportion to the height of the story. The same principle is carried into the apartment-house that prevails in the ordinary dwelling-house. The staircases and passages leading to the various floors are not, as seems to be the fashion in London, cold, cheerless and wind-swept, but are warm, carpeted and decorated, as are the halls and staircases of a private house. The typical flat, when one enters it after stepping out of the elevator, consists of an inner hallway or passage, from which open out the various rooms; some of these derive light and air from a central shaft, but as many as possible have direct communication with sun and air. Everything is done to economize room, and I think many valuable hints would be gained by English architects from a study of the plans and specifications of these American flats. The servants, as a rule, sleep upon the top floor, access to which is gained from each flat by a private staircase in the rear; the entire flat is heated either by steam or hot water, as the case may be, and in addition to this there are open fireplaces in all the principal rooms. From the kitchen a dumb-waiter or small lift runs to the basement, and is used by tradesmen for sending up their goods, and by servants for sending down the ashes and so forth. Coal and wood are kept in the cellar, and sent up every day as required by the janitor or care-taker attached to the premises. A large refrigerator, carefully drained is, as a rule, built into the butler's pantry. The woodwork is generally hard-wood, and exceedingly elaborate mantels and over-mantels, with mirrors and bric-à-brac shelves, and so forth, are among the permanent fixtures. Cherry and ash are the predominant varieties of wood used, though mahogany is by no means uncommon. In the newer flats the lighting is effected by means of the incandescent electric system, and this, as well as the heating, is included in the rent. Some quarter of a century ago the ordinary house in New York was what is termed a "brownstone front," and was quite as hideous and unarchitectural as anything we can offer in this country. The exteriors were all cast in one mould, and the plan was always more or less on the same line. They have changed all that now, and nowhere can a more interesting variety of elevation be found than in the more newly built districts of New York. Even the so-called speculative builder's house is pleasing to the eye, and I have in my mind a couple of short streets in the upper part of New York which I used to pass every day, and which were entirely built by one man, an ordinary building speculator. Instead of going (as I think the same man here would) to an architect, even if he went to an architect at all, and getting from him the plans of one house, to be afterwards reduplicated as often as necessary, the American got half a dozen architects, all of acknowledged position, to design for him a number of houses of somewhat similar plan, but of absolutely varying elevation. The result is a street, which in its variety of gabling and fortuitous contrast of color and material is as picturesque as anything one can find in the oldest quarter of one of the oldest Dutch towns. The interiors of these small houses, which are let at a moderate rental, are arranged with care and an eye to effect, and are fitted with an opulence of detail as regards the woodwork which could only be found here in the houses of rich men built for their own occupation.

The American theatre, both before and behind the curtain, is better arranged, on the average, than any playhouse in the world. As regards its plan, the American theatre is so arranged that the line of sight from every seat therein to the stage is, as a rule, perfect. The fact that the entire ground-floor is taken up with what we should call here the stalls, renders the task of planning and of securing adequate entrances and exits somewhat easier, it is true, than that set

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before the English architect; but, at the same time, no such dangerous death-traps as one finds in London would be permitted in America. The building-law of New York is in most of its provisions most admirable, but no sections are more commendable than those which expressly concern the erection of theatres or other buildings intended to be used for the purposes of public entertainment. It is provided that every theatre shall have at least one front on a public highway, and that on either side of such building shall be left a clear space of not less than eight feet in its narrowest part, and that this space shall begin from the line of the proscenium-wall and extend the whole length of the auditorium. No portion of any theatre can be used for any other purpose, while as far as possible the entire building and all it contains must be of non-combustible material, and all stage woodwork, scenery and so forth must be rendered non-combustible by approved means.

I hardly think I should be doing you any service by dwelling at too great length upon the purely artistic side of American architecture or the value of their work. Nothing quite so shocking nor so harrowing as the American vernacular church-work would be permitted here by the public authorities. Detail is the weak point of the average American architect, but his Gothic detail amounts to a crime. Of course, they have had Richardson, whom most of you, I am sure, know by name at least, and in Richardson they can claim the greatest architectural genius the English-speaking world has seen since Wren's days. "The King can do no wrong" — and Richardson's church work was almost on a level with his secular performances, which says everything. But Richardson is dead, and, like all men of the highest genius, he was a snare and a delusion to his followers. A big man intellectually, physically and artistically, he was of so strong and marked an individuality that his colleagues had perforce to be his imitators, and the greatest menace offered to American architecture is the influence of this departed Titan, which is responsible for the presence of swarms of little tin Richardsons on wheels, who are flooding the country with weak imitations of the Richardsonian Romanesque marked by all devices, and but pale reflections of the virtues of the original. Turn, on the other hand, to their country and town houses, and in the work of such men as Stanford White, of the firm of McKim, Mead & White, of Richard M. Hunt and others whom I could name, though doubtless with but little benefit to English hearers, and one finds a restrained originality, a freshness of *motif* growing to a thoroughly trained cultured perception and trained knowledge which you would not find it easy to parallel on this side of the Atlantic. As to their public buildings, they are hampered regarding government and municipal edifices, but of their offices and corporation buildings I may say that though not so prominent as their domestic work, they are at least not quite so immoral as their churches. Without entering into any detailed criticism of the modern American architectural styles, I may say that so far as I am aware its followers are the first architects in any nation who have journeyed with the sister arts of painting, music and literature into the realms of eclecticism.

THE ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

PORCH TO HOUSE OF PROF. ELIHU THOMSON, SWAMPSCOTT, MASS. MR. JAMES T. KELLEY, ARCHITECT, BOSTON, MASS.
[Gelatine Print issued with the Imperial and International Editions only.]

HOUSE OF PROF. ELIHU THOMSON, SWAMPSCOTT, MASS. MR. JAMES T. KELLEY, ARCHITECT, BOSTON, MASS.

PORTAL TO CHAPEL OF THE COLUMN, S. PRASSEDE, ROME. MEASURED AND DRAWN BY MR. GUY KIRKHAM, SPRINGFIELD, MASS.

A LITTLE MOUNTAIN CHURCH. DESIGNED BY MR. E. ELDON DEANE, ARCHITECT, BOSTON, MASS.

HOUSE AT "ACORN POINT" MANITOU ISLAND, MINN. MESSRS. GILBERT & TAYLOR, ARCHITECTS, ST. PAUL, MINN.

HIGH-SCHOOL BUILDING, ARKANSAS CITY, KANSAS. MESSRS. PERKINS & ADAMS, ARCHITECTS, TOPEKA, KANS.

HOUSE AT YONKERS, N. Y. MR. G. HOWARD CHAMBERLIN, ARCHITECT, NEW YORK, N. Y.

[Additional Illustrations in the International Edition.]

HOUSE AT BERLIN, PRUSSIA. HERREN KAYSER & GROSSHEIM, ARCHITECTS.
[Gelatine Print.]

EQUESTRIAN STATUE OF ETIENNE MARCEL, PARIS, FRANCE. MM. IDRAC AND MARQUESTE, SCULPTORS.

IN the fragment of his life of the sculptor Frémiet, Mr. Bartlett speaks, this week, rather disparagingly of this statue, but the *Moniteur des Architectes* holds it in other esteem and says that "of all the statues which adorn the public squares of Paris, the one of 'Etienne Marcel' must be held the best, the most decorative and the most instructive."

The history of the statue is this: In 1882, a public competition for the model was held and seventy-four suggestions were submitted, some being models and the others drawings. The three prizes were awarded to Idrac, Frémiet and Marqueste in the order named. Idrac and Marqueste had been students together at the École des Beaux-Arts, had both won the Prix de Rome and were both "decorated" at about the same time. Idrac began his work in 1883 and about the time the clay figure was fairly complete fell sick through overwork and died. As Frémiet was unwilling to complete work which he had not originated, Marqueste was called in and under his care the group was got ready for the founder, though three years elapsed before the plaster model was ready for the founders, MM. Thiébaut *frères*, who cast the group in a single piece. The city of Paris paid $9,600 for the model and $7,000 for casting, though the ordinary price paid for such casting is $12,000, the explanation of the small sum paid for this great work lies in the fact that both sculptors and founders worked for fame and the city knew it and took advantage of it. The subject of the statue, Étienne Marcel, a French partisan chief and agitator of reform, was Provost of the Merchants of Paris when King John was defeated and made prisoner at Poitiers in 1356. He became the leader of the popular party in its contest with the Dauphin Charles, who acted as regent. Marcel gained predominance in Paris and controlled a majority in the States-General, which refused to vote supplies for the war unless their grievances were redressed. A revolution was effected which rendered the government almost republican, but having given the control of the city to Charles the Bad, of Navarre, Marcel was betrayed by him and assassinated in 1358. Clad in the costume of the Provosts of Paris, ill-harmonizing with that worn by the nobles, he here presents the very type of the forerunner of a new régime presenting to the old a scroll and a sword in his right hand, the scroll, or Charter of the Rights of Man, represents peace, but peace with its rights sanctioned by a binding convention, the sword grasped by the blade below the hilt signifies power, but a power so sure of its own capacity of performance that it need not menace.

The position of the statue on the north side of the Hôtel de Ville overlooking one arm of the Seine at that point, is an excellent one, and M. Deperthes, the architect of the building, has combined the pedestal with the balustrading in a felicitious manner.

HOUSE IN GLOUCESTERSHIRE, ENG. MESSRS. ERNEST GEORGE & PETO, ARCHITECTS.

NEW BUILDINGS, THE HIGH CROSS, CHESTER, ENG. MR. GEORGE FRED. HAINES, A. R. I. B. A., ARCHITECT.

THESE buildings are situate at the top of Bridge Street Row, next the High Cross, in the City of Chester, and are used as shops and residential chambers combined, to replace the very ancient ones which were burned down last year, and formed part of the Rows. The external woodwork is of oak and plaster panels, and the interior pitch-pine throughout. The panels under bay-windows above the Rows are of plaster.

NEW DUTCH REFORMED CHURCH, HEIDELBERG, TRANSVAAL. MR. H. G. VEALE, ARCHITECT.

THIS church has been erected by the Dutch inhabitants of Heidelberg and the district at a cost of nearly 16,000*l*. It is seated to accommodate 650 persons. A choir-loft is placed at the south end, which will seat thirty persons and receive the organ, imported at a cost of 1,000*l*. Advantage has been taken of the sloping ground by placing a large schoolroom under the north end of the church. A stone pulpit of rather good design is being made. It is said this is the only stone pulpit in South Africa. The building was started in February last, and is now rapidly approaching completion. It is built of sandstone of rather coarse nature, which is found in great abundance in the neighborhood, the stones for the dressed work being of the best quality obtainable.

CIRENCESTER CHAPEL. MR. LOCKE WORTHINGTON, ARCHITECT.

THIS chapel has been practically rebuilt, though the architect has striven to maintain and reproduce in the new structure the feeling of the old work. Three of the old walls stand, and the windows and entrance door are much the same. The architectural characteristics are of the late Tudor style, intermingled internally with the heavy ponderous Classic galleries and columns of the Classic revival. It is noteworthy that the iron gudgeons on the windows, which held the shutters of our predecessors, as a precaution against molestation during Divine service, are now retained in one window as an indication of days and times forever passed away. The old galleries have been practically removed, a portion at the end of the church being adapted both for use as gallery and Sunday-school. The old irregular tub seats, with the old paving, have been taken away and replaced by oak wood-block in aisles and boarded joists beneath sittings. The floor has a ventilated space beneath, and six inches of concrete lies under the whole building. The building has got a strong new roof, the internal soffit of which is richly panelled. A delicately-carved rostrum is situated at the east end, with the words "Faith, Hope and Charity" placed on the front panels. The walls have been plastered with cement and colored a pale rose tint, the ceiling being colored French gray. The new roof is carried by four pairs of good principals, and the side walls have been raised

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two feet to receive it. The roof is well ventilated. A new top window has been added on the north side, in harmony with the existing lights, and one of the south windows, which was formerly obscured by the gallery, has been fitly restored. A window in the east wall has had to be built up. The seating is by means of comfortable red deal benches, stained and varnished. The cost of the restoration is about 800*l.* An iron gate and rails have been fixed in the passage from the street to the chapel, and at the entrance of the passage is an arc bearing the words "Unitarian Church" in gilt letters.

RESIDENTIAL FLATS, BRIXTON, ENG. MR. G. WARREN COOPER, ARCHITECT.

This building is being erected in Coldharbor Lane, Brixton, and will contain sixteen residential flats, which are much in demand. The brickwork is of red bricks, with stone pilasters and moulded string-courses, etc. The stairs are of teak, and the flat is covered with foreign asphalte, and will be used for a drying-ground. There is a laundry at the rear for the use of the tenants. The building is being erected for Mr. J. J. Brown, of Brixton.

SELEHURST, SUSSEX, ENG. MESSRS. C. E. CLAYTON & E. BLACK, ARCHITECTS, BRIGHTON.

This house, now just completed for Mr. W. E. Hubbard, J. P., stands on a well-wooded site in a very picturesque part of Sussex, about midway between Horsham and Cowfold. The typical Sussex manor-house, or superior farmhouse, has been taken as a model, and the materials used — red bricks, tiles, stone and oak timber — are mainly of local origin or manufacture. The work has been carried out by various contractors. The drawing, which we have reproduced, was hung at last year's exhibition of the Royal Academy.

COMPLETION OF FACADE, CHURCH OF THE HOLY TRINITY, CORK, IRELAND. MR. D. J. COAKLEY, ARCHITECT, CORK, IRELAND.

This design was selected from about eight sets of plans submitted in competition as being the most suitable and fulfilling all the conditions as to cost, the contract being taken for 300*l.* less than the sum mentioned in the printed instructions to architects. This church was commenced about seventy years ago, from designs of the late James Pain. The front piers were existing, and were about thirty-four feet high. The architect adapted his design to the existing work, retaining the piers, etc. The whole of the work is in Cork limestone, and is now nearly completed. The total cost will be, including extras, 6,000*l.*

THE ENGLISH PRESBYTERIAN CHURCH, LLANDUDNO, WALES. MR. J. G. WILLIAMS, ARCHITECT, LIVERPOOL, ENG.

The new English Presbyterian Church, Llandudno, situate on a commanding site at the corner of Chapel and Gloddaeth Streets, has just been completed, at a cost, including schoolroom, of about 5,200*l.*, and was opened in Easter week.

The school buildings adjoining were built in 1886, at a cost of 1,400*l.*, and contain on the ground-floor a schoolroom, 42 feet 6 inches by 28 feet, having accommodation for 250 persons, two classrooms, lavatory, conveniences, and minister's vestry adjoining. The basement contains heating-apparatus, boiler, cellar for coals.

The church measures internally 58 by 55 feet, exclusive of vestibules, and has accommodation for 450 persons. The plan is arranged with circular pewing fixed in an isacoustic curve, which inclines with the floor towards the pulpit, and being in one span, dispenses with columns and piers, and adds to the convenience of the minister being seen and heard by the whole congregation. Ample means of egress are provided from entrances in Chapel and Gloddaeth Streets, leading to tiled and parquet-floored porches and vestibules, the latter being constructed so that invalids may be conveyed with ease in their bath-chairs to the church, where accommodation is provided. Revolving shutters, in arched openings, divide the church and schools, which may be thrown into one on crowded occasions. All the walls are built of a dark local stone, which contrasts well with the Cefn stone dressings.

The external treatment of elevations is designed to produce broken and effective outlines. A square tower, flanked with offset buttresses, occupies the corner of Gloddaeth and Chapel Streets, having moulded arched windows, doorway and belfry window openings, surmounted by moulded enriched cornices and balustrades, and crowned by a neatly tapered, octagon, broached spire, capped with moulded apex and ornamental finial, 86 feet high. On the east side of Chapel Street is the schoolroom gable, with traceried rose-window and moulded arched doorway and windows, and dwarfed slated roof and octagon stone spirelet. On the west side of the same are the staircase windows, with octagonal roof and ornamental finial. An octagon stone turret projects from the main gable of church, in which the principal entrance is placed, with canopied buttresses, having moulded arched openings. A large traceried window occupies the centre of gable. The elevation to Gloddaeth Street is divided at regular intervals by buttresses and two tiers of arched windows, the centre being canopied and a gable formed in which are traceried windows, with a circular rose tracery window in the centre. The organ-chamber is placed at the extreme end, and projects from the main building. The roof is of conical shape, with the timbers converging to the centre, forming an apex, on which is a slated spire turret or *flèche*, having ornamental finial. The large gable roofs intercept the main roof at apex. To add to the acoustic properties of the building the walls at angles are built circular. The ceilings are panelled, with moulded, decorated and gilded ribs, and coved at the eaves. The interior is fitted up in pitch-pine, also the pulpit, which is of chaste design. The windows are filled with cathedral-glass lead-lights.

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

PROJECTIONS BEYOND THE BUILDING-LINE.

Hartford, Conn., May 15, 1891.

To the Editors of the American Architect:—

Dear Sirs, — What is the law or custom in regard to building-lines? Must a building be so set that the water-table face will be on the line or is it sufficient to have the face of the main structure on the line? Yours truly, D.

[It is usual to count the "ashlar line," or main face of the building, on the street line, and to allow water-tables and mouldings to project outside; but there is no law on the subject, and it would be necessary to ascertain the practice in each place. Occasionally, where there is a space restricted against building on the front of the lots, the deeds recite just what projections shall be allowed. Over private adjoining property it is not allowable to build any projection whatever. — Eds. American Architect.]

TRADE SURVEYS

There is no help for the present condition of business but to continue the wise policy of making only as much as can be sold. Business men were never better informed as to trade conditions and trade prospects than at the present time. It has never been as difficult to obtain money for wild-cat ventures as at this time. There are two reasons: one is, every new enterprise is more carefully scanned and weighed, and, second, there is such a multitude of opportunities that investors have plenty of choice. It is also true that there are more schemes under promotion and more opportunities for investment in a greater number of avenues than at any time in the history of the country. Business men recognize perhaps more clearly than they ever have done the imperative necessity of avoiding extremes, and of keeping within the limits which demand is creating. One of the favorable indications is that the country at large is remarkably solvent; there are comparatively few weak spots. The enormous expansion of business has been effected with comparatively little loss. Liabilities exist by the hundreds of millions, but expert authorities who are studying this feature say that there is a very small percentage of invested capital that is likely to be unproductive. Of course, this statement must be accepted with grains of allowance, and for what it is worth. It is impossible to make predictions twelve months ahead, or to say that all of the millions that are being invested in new enterprises and schemes will realize fair returns. A favorable indication is a decline in the rate of interest in the money-borrowing West; this decline is legitimate, and is brought about not only by the greater supply of money seeking investment in the West, but also by other considerations, the basic one of which is the extraordinary demand for new lands for agricultural purposes. The statistics published in the reports of State governments show that a great deal of new land is being taken up, and that a vast amount of land heretofore uncultivated is now being reduced to cultivation. The point is that a great deal of land in the States between Pennsylvania and Iowa and between Michigan and Alabama which heretofore it has not paid to cultivate is now coming in, and hereafter will be more productive. Agricultural authorities think that this will make these States gradually less dependent on the trans-Mississippi States for a portion of the cereal products consumed. For a while, wheat and corn cultivation was prosecuted with extraordinary vigor in the farther Western States, but within a year or two the States east of the Mississippi have been giving more attention to farms and farming products. Even in New England, the attention of small farmers is being diverted in a new direction. Farms which have been abandoned or neglected are now looked after. Just what has brought about this change it would not be pertinent to say, but the fact is a pleasing one, going to show that there is no necessity for relying exclusively upon one section of country for our cereals, and upon another section for our manufactured products. This tendency will, no doubt, increase, as it should. It is a healthful sign, and one which will add much to strengthen little and big industries East and West. In regard to the volume of business, it is generally admitted that an improvement is much needed, but the reports of market conditions must not always be read as they are written. Speaking generally, prices for manufactured products are declining; while it is not true that prices for farming products have advanced, farmers are better satisfied with prices realized, as compared to cost of production, than a few years ago. The cause for this improving condition is not easily pointed out. There is, of course, a great deal of poorly-requited labor in the newer States, but economists and careful observers think that there will hereafter be less complaint on this score than there has been. In other words, industries in shop and farm are settling down and harmonizing and equalizing, so to speak, so that each is obtaining nearer an equivalent. The manufacturers of all kinds of machinery from locomotive engines to hardware are kept pretty busy, and the projection of new manufacturing establishments in all sections of the country goes to show that the country is not overdoing in its manufacturing capacity. There are exceptions, of course, to this sweeping statement, and they are to be found in the lumber trade, in iron-making and in some other directions. As a rule, however, the producing-capacity of the country is kept on the safe side.

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THE attack of the New York walking-delegates upon the lumber-dealers appears to have met with complete defeat. The action of the dealers, who combined in self-defence, in stopping delivery of lumber in the district reigned over by the delegates, threw about a hundred and fifty thousand men out of employment, and the autocrats were quickly forced to yield. An offer was made, and accepted by the dealers, removing the boycott against a certain dealer which caused all the trouble, and the delivery of lumber was ordered to begin again as usual. The delegates, however, desired to reduce their proposition to writing, and, when opened, it was found that a new condition had been inserted, to the effect that all non-union men should be discharged from the yards. The lumber-dealers immediately rejected this proposition, and countermanded the orders for delivery, and the delegates then surrendered without further dodging, the only stipulation made being one to which the lumber-dealers have not yet agreed, that future differences, until July 6 next, should be settled by a board of arbitration, composed of three members of the Lumber Dealers' Association, and three of the Board of Walking-Delegates. We hope that this may end the struggle which has taught both sides that the trade-unions can exercise their power with impunity only against individuals, and that a combination of employers can defeat with tolerable certainty the manœuvres of the labor leaders. The first contest in which this was made to appear, was that brought on by the attack on certain brickmakers last year. The combination formed by the brickmakers to resist was incomplete, and the struggle was prolonged on that account, but the victory remained at last with the employers. This year, the lumber-dealers have profited by the brickmakers' experience, and have acted more energetically, and repelled the attack much more quickly and thoroughly. We may be sure that the lesson will not be lost in New York, and that the time is nearly over when a manufacturer or dealer can be compelled to creep humbly before the Board of Walking-Delegates, to apologize for having refused an insolent bully permission to inspect his shop, and to offer himself and his business to the unrestricted supervision of the bully and his friends.

WE mentioned the other day the decision by which some stained-glass windows for churches, which were entered at the custom house as "pictures," were made to pay duty as manufactures of glass. Since then, this question, which is of much importance to church corporations, and to others interested in ecclesiastical architecture, has been discussed by the Attorney-General, who, finding that the considerations involved are not free from doubt, has advised that they should be referred to the Supreme Court of the United States, which will give a final decision as soon as the case can be reached.

A VERY good illustration of the fact to which we have so often called attention, that the Government authorities of the United States have no deep antipathy to good artists, or to good art, but that they do not know how to interest the one, or get the other, is to be found in the recent discussions between the Treasury Department and certain sculptors. It is proposed to remodel the coinage, and, with most praiseworthy intention, the officials of the mint issued circular invitations to some two thousand artists of various degree. Circulars were sent, accordingly, to, amongst others, Messrs. Augustus St. Gaudens, J. Q. A. Ward, Daniel C. French, Olin L. Warner, Hubert Adams, Charles I. Niehaus, Miller McMonnier, Kenyon Cox, Will I. Low, and H. S. Mowbray, and Miss Louisa Lawson, inviting them to submit designs. The terms offered by the circular were unsatisfactory, as is, we believe, invariably the case where such invitations are drawn up without professional aid, and the artists mentioned immediately joined in returning a very sensible letter, declining the invitation on the ground that the terms of competition proposed were "such to preclude the possibility of any good result from it," for the reason that the time given for the preparation of the sketches was too short, and the compensation altogether insufficient, while no assurance was given as to who would make the awards. The letter concluded by suggesting terms of competition which they would consider acceptable, these being, briefly, (1) that the awards should be made by a jury of competent artists of standing in the profession, to be chosen by vote of the competitors, by the presidents of the great art institutions, or otherwise; (2) that at least three months should be allowed for the production of sketch-designs, and at least six months for the production of completed models, if these are to be insisted upon; (3) that one hundred dollars should be paid to each artist competing for each sketch-design submitted, or five hundred dollars for each completed model accepted; and (4) that one thousand dollars, in addition to the sum paid for the competition sketch or model, should be paid for each completed model finally accepted. Besides this, the artists proposed that the obverse and reverse of any coin should be designed by the same artist, and that the reverse of the present silver coins should be abandoned.

ALL these artists, whose opinion deserves attention, signed the letter, except Messrs. Ward and Warner, who were absent from New York, Miss Lawson, and Mr. McMonnier, who had already sent an individual reply. It is much to be hoped that the Treasury officials will receive the suggestions of the sculptors in the same spirit of courtesy in which they were made, and will modify their action in accordance with them. All artists will agree that the price asked by the sculptors for their work is moderate enough, and that the other propositions which they make are perfectly fair and reasonable. The Treasury officers, the public, and the sculptors themselves, are in entire accord as to the object to be gained, which is simply to make our new coinage the most beautiful that American skill and talent can produce. This is certainly a noble scheme, which does credit to those who devised it, and nothing should be allowed to stand in the way of carrying it out. To this day, the common silver coins which the Greeks carried about in their pockets twenty-five hundred years ago are, perhaps, the most instructive objects of the sculptor's art in existence, and to possess and study one of them is almost an artistic education. There is no reason why our new American coins should not be as precious as those of Magna Græcia, if we are willing to find out, and follow, the proper way to make them so. This way is not to hire cheap designers, or to get makeshift models dashed off in a hurry, but to employ the best artists in the country to devote time enough to the work to produce something worthy of themselves, and both to encourage them and incite them to do their best, by putting the award in the hands of the judges for whose opinion they have the highest respect. If these conditions can be fulfilled, we may promise ourselves

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very great pleasure in the new coinage. The expenditure of a couple of thousand dollars more or less on the design is insignificant compared with the result to be attained. Let any one look at the silver coins in his pocket, and ask himself how much more pleasure he would annually derive from handling little bas-reliefs by St. Gaudens, Warner, Niehaus and the rest, in place of eagles and wreaths of cornstalks. Suppose, to put a modest valuation on the æsthetic enjoyments of the ordinary American citizen, that the average pleasure and educational profit to be obtained in this way is worth one cent a year for each person. At this rate, the value of good designs over bad ones will be, for the whole country, about six hundred and fifty thousand dollars a year, and, supposing the dies to last twenty years, we shall have profited to the extent of thirteen million dollars by an expenditure which will have been reimbursed, in the same equivalents, in about a day.

THE Government, although special inspectors have just been sent to the public timber-lands, appear to have been hardly yet awakened to the immense and pressing importance of doing something to check the destruction of our forests. Within a generation, the United States, from one of the most richly wooded countries in the world, has become comparatively sparsely provided with timber; yet, such is the force of the habits handed down from our grandfathers, who supposed that the forests among which they dwelt were inexhaustible, that we still see our small remaining area of timber-land diminishing day by day, partly under the axes of reckless lumbermen, and partly through the gigantic forest fires, whose smoke obscures the sun over half the continent for weeks in every year; while in Germany, which at this moment possesses a forest area much larger, in proportion to its population, than the United States, firewood is sold, in the cities, by the pound, all the forests are guarded by State officers, thoroughly educated for the purpose, the underbrush is kept cleared away, to prevent fires, the cutting of timber is restricted to a limited number of mature trees to the acre, so that the supply shall be kept constant, and no timber, except a little oak of specially beautiful grain, is sent out of the country; while the United States, out of a smaller reserve, exports timber to the value of more than five hundred thousand dollars a week. The end of this way of treating the splendid provision which Nature made for us is easily to be seen. Within a few years there will be a timber famine in the United States. It is true that the Canadian forests will supply us with spruce for a considerable period, but Canadian spruce, at a high price, will not seem to the Pennsylvania farmers a favorable exchange for the unrivalled white pine which their fathers chopped and burned and destroyed so energetically; and still less will it commend itself to the people of the future great cities of Texas, as a substitute for the Georgia pine which they could once get so easily and cheaply.

WE do not realize how imperatively necessary a supply of wood is, or how little we have left to satisfy our increasing needs. The forest area of the United States has long ago been settled as thickly as it is likely to be, and the tendency of population is now strongly toward the treeless, though fertile lands of Kansas, Texas, Nebraska, Colorado and Montana. The people who settle in those States must have houses, and must have timber to build them with, and the railroads which serve them must have perennial supplies of ties. For all these needs wood must be had, even if it is brought from the ends of the earth. We have known building timber to be sent from Boston to Zanzibar, and from New York to Buenos Ayres, and we may rest assured that when our stock is exhausted we shall have to buy more, and shall have to pay the people who have it whatever price they choose to ask for it. So far, the steps which have been taken by the public authority to check the annihilation of the forest wealth of the country have been hardly more than the feeblest demonstrations of a consciousness of the evil against which they were directed. Something has been done to encourage tree-planting by settlers, under the so-called Timber-Culture laws, which provide that a settler who cultivates trees on one-sixteenth of his homestead claim shall receive his patent in three years, instead of five, but this is a mere trifle, and the unwillingness of Congress to do anything of serious practical significance is curiously shown by the law adopted at the last session, in which it was declared that it is "important to reserve all public lands bearing forests, or covered with timber or undergrowth, on which the timber is not absolutely required for the legitimate use and necessities of the residents of the State or Territory in which the lands are situated." It need hardly be pointed out that "the legitimate use and necessities of the residents" in the neighborhood of Government timber lands have generally required them to plunder and denude the lands to their hearts' content, and will be likely to continue to do so, until some much more forcible language than this is used in the public statutes, and officers are assigned to see that the statutes are complied with; and even then, in our opinion, little will be accomplished toward restoring the balance between the production and consumption of timber until private plantations, as well as natural forests, are brought under official supervision. It is well known that, in the Eastern States, pine trees are now extensively planted, but the work is done by individuals, with small resources, and still less knowledge of the proper management of their infant forests. There is no reason why expert officers of the Government should not be detailed to assist in this very important work, and to combine the efforts of a large number of proprietors. There would, obviously, be a great difference, at the end of twenty years, between the pine timber on a thousand acres of land, belonging to different estates, but all planted and managed together, under skilful direction, and that on an equal area, divided into a hundred scattered clumps, planted at random, and left to grow or perish as circumstances might dictate; yet the cost of one method of cultivation would be hardly larger than that of the other, and the shrewd farmers of the New England States, at least, could be depended upon to appreciate the advantages of the combined and well-directed effort. If such facilities for increasing the profit of timber culture were afforded by the public authority, nearly all the waste land, now overgrown with weeds and worthless "scrub," which occupies an immense area in the Eastern States, could be made valuable to its owners; and the Federal officers, or even those of the individual States, might be empowered to take possession of and plant such waste lands as the owners neglected to improve, and to retain them long enough to secure reimbursement, from their products, for all expenses incurred, before turning them over, in the shape of valuable and productive property, to their owners. To put a stop to forest fires, which not only form one of the principal agents of the destruction of the standing timber now in existence, but the dread of which is perhaps the principal obstacle in the way of inducing farmers to plant forest trees on their exhausted lands, an efficient means would be, it seems to us, to make every man responsible for losses by forest fires proved to have originated on his land, railroad companies, as now, assuming the liability for all fires caused by sparks from their cars or locomotives. It is tolerably well settled that if underbrush is kept cleared away, there is little danger from forest fires, and, with such a regulation, which would be a thoroughly just and fair one, every man who owned timber land would be constantly on the lookout, not only to see that his own territory was free from undergrowth, which might make him liable to his neighbors, but to note those of his neighbors who allowed the "scrub" to grow, so as to have good evidence against them in case of a destructive fire. Such mutual supervision would be infinitely more effective in promoting the proper care of forests in this respect than the occasional visits of an officer, and it would cost the public nothing, while the persons chiefly interested would be amply rewarded for their trouble by the improved growth of their trees.

ACCORDING to *La Semaine des Constructeurs*, an important archæological discovery has been made at Aubagne, near Marseilles, where some workmen, engaged in digging a trench, struck with their picks the ridge of a small structure, which, by order of the owner, was soon laid bare, and proved to be a little temple, about twenty-three feet long, and twenty feet high, evidently of Roman workmanship, and strongly resembling in style the famous Maison Carrée of Nîmes, which is not far away. In the interior of the temple was found a very beautiful statue of Diana, and several sculptured fragments, which were collected, and carried to a house in the neighborhood, to await an opportunity for transporting them to the Museum at Marseilles. One of the fragments bore an inscription, of which only parts remained, these forming the letters,

TRI . . . Æ . . . SYLV . . . ERE.

So far, no one appears to have been able to supply the missing letters, and perhaps some of our readers would like to try their skill at guessing them.

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SPANISH ARCHITECTURE.[1]—I.

Fig. 1. Cathedral of Murcia.

THE history of Spanish architecture is very complicated, owing to the influence of political events which at three different times placed the government of the country in foreign hands. This history may then be divided into four sections, the first covering the Roman period; the second, the period of barbarian invasions (Goths and Visigoths); the third, the period of the conquest and of Moorish rule in the provinces subjugated by the Arabs; the last includes the history of architecture in those provinces that remained independent, from the Arab invasion to the sixteenth century; then from this latter date, in all Spain, down to the present day. Two of these periods, the second and the fourth, form the subject of the following sketch.

At the time of the barbarian invasion of Spain (A. D. 411) ancient architecture was already in complete decadence and the monuments which were then reared in the Iberian Peninsula were, as in all the other Mediterranean provinces of the Empire, more or less strongly marked with the impress of the arts of the Orient. This influence may certainly be attributed in a great degree to the establishment of the imperial capital at Byzantium, but it is perhaps even more largely due to the pilgrimages which Christians of all conditions were in the habit of making to sacred places, and to the more or less successful imitation of the architectural forms in use in Palestine and Syria.

In general, scarcely anything more than mere vestiges of the churches, basilicas or convents of that epoch have been preserved, and in Spain, as in the north of Africa, as well as in Southern Italy and Sicily, we find not only multifold analogies in the composition of plan and *ensemble*, but also of the details which seem copied out and out from the same models. To cite but one example, the same decoration is found repeated, in absolutely the same form, in a Syrian church (at Serdjilla), in the Spanish collegiate church at Covadonga (Concejo de Cangas de Onis), in the church of St. John at Baños (province of Palencia) and in Africa, in the churches of Bir-Oum-Ali and Henchir-es-Sdid. It is very interesting to determine the unity of style displayed in the monuments of the fifth to the seventh century over this broad extent of territory. There are, nevertheless, notwithstanding their common source of inspiration, notable differences of detail in the dispositions adopted, and the Spanish plans, while retaining the basilican form, are more elongated than the Syrian or African. Down to the ninth century, this school continued to flourish in Spain, in those provinces which escaped the Arab conquest, and it was only in the eleventh century that edifices began to appear, bearing any likeness to the more ancient French-Romanesque structures. Afterward, with the reconstitution of the Spanish kingdoms, the Arabs were gradually driven back by the Spaniards, while at the same time, they bequeathed numerous motives of their art to their conquerors. Until the fourteenth century, however, the influence of French architecture prevailed and the cathedrals of Burgos (southern front), Salamanca (Tower of the Cock) and Toledo exhibit very fine examples of it.

On the frontiers of the provinces occupied by the Arabs and in those gradually recovered from the invaders by the Spaniards, the so-called Mudejar style began to appear in the eleventh century, concurrently with the employment of the architectural forms of the north, which were brought into Spain by numerous artists attracted thither from Germany or Flanders; it reached its zenith in the fifteenth century. The Mudejar style may be described as follows; an Arabic ornamentation, decorating an *ensemble*, the conception of which is derived from European architecture (either Gothic or the early period of the Renaissance); these conditions may be found reversed, as in the Puerta del Perdon at Seville (sixteenth century), where an Arabic *ensemble* is covered over with Renaissance decorations. In the fifteenth century, the Gothic style was almost exclusively reserved for religious edifices, and the Mudejar, parallel with a new style termed Plateresque, was more especially employed for civil constructions. We have followed here the classification adopted in official Spanish works on the national monuments, and particularly in the treatise entitled "*Monumentos arquitectonicos de España.*" The Mudejar style was common in those regions where Arab influence was perpetuated by a people of Arab stock, though converted to Christianity; the Plateresque style, on the other hand, was more especially developed in provinces destitute of these traditions; nevertheless, on the borders of the sections subjected to these influences the two styles are noticed side by side. Both possess characteristics of powerful originality, and they are the only styles which are exclusively Spanish. The other monuments of Spain, whether Romanesque, or Gothic, or of the Renaissance, or modern (of the seventeenth and eighteenth centuries), are so slavishly copied from foreign models as to preclude any just claim to originality, although they do exhibit that peculiar character of exuberance and wealth, which is typical of the Spanish art of every period.

It is the adaptation to architecture of forms commonly used in the goldsmith's art that constitutes the distinctive feature of the Plateresque style, and hence also its name (*platero*, goldsmith or, more properly, silversmith). In this style broad surfaces, the masses of which are still inspired by Gothic traditions, are covered over with arabesques and ornaments of quite complicated pattern. These decorations are derived from the first Italian Renaissance, but in their abundance they offer a contrast to the somewhat playful soberness of primitive Italian art.

A description of the Mudejar style belongs rather to the history of Moorish architecture, where it naturally finds a place as a continuation of Arab art in Spain. We therefore refer our readers to this subject for its study.

The imitation of Italian art was much in vogue among European nations at the moment when, under the energetic hand of the emperor Charles V, the Spanish power reached its zenith; Spain then borrowed all her architectural inspirations from Italy. From this time the constant intercourse naturally maintained between Spain and Italy by the possession of Naples and Sicily, gave prominence to this Italian influence. In the seventeenth century, Spain adopted all the oddities and distortions of Italian architecture, and exaggerated them still more in the eighteenth, ending this period by crudely copying the edifices of Italy which were inspired by the revival of ancient traditions.

The feature which distinguishes Spanish from other contemporary art, in all these different periods, is an exuberance, a burdensomeness, which manifests itself even in the productions of Moorish art. Decorations are distributed in profusion everywhere, the dimensions of the structures are oftentimes colossal, and we can truthfully liken this exaggeration of effects to the proverbial magniloquence of the national literature. Spanish

[1] From the French of H. Saladin, in Planat's "*Encyclopédie de l'Architecture et de la Construction.*"

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architecture exhibits this same pompous character in the Middle Ages, in the Renaissance, and in modern times; to cite the numerous examples of it would be to pass in review nearly all the monuments of the country. It is this Spanish disposition to do things on a grand scale and seek effect that has given their architecture that theatrical aspect which is so characteristic of it, and of which two remarkable types are given here: the façade of the Cathedral of Murcia, (Figure 1) and the Puerta del Palau at Valencia (Figure 2). The architectural composition is reduced to the rôle of simulating a decoration, without indicating any disposition which might be expressive of a mode of construction or of some office or purpose. However, in the important edifices of the fifteenth century, in the

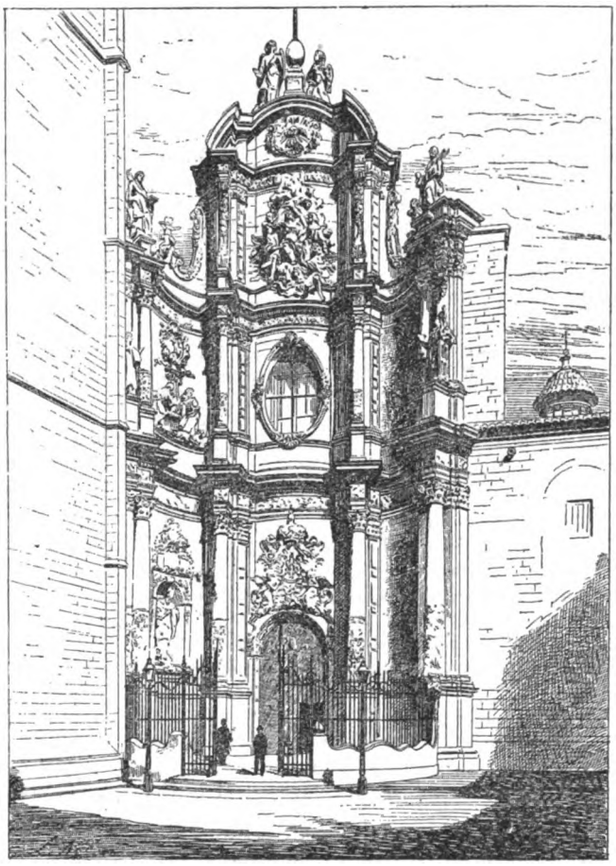

Fig. 2. Puerta del Palau, Cathedral at Valencia.

great cathedrals of Burgos and Toledo, the Spanish architects succeeded in producing marvellous effects of grandeur and majesty.

By the great wealth of ornamentation lavished upon the sanctuaries, the choir walls, the altars and altar-screens they gave to the religious expression of their works a sense of vastness, vagueness and weight analogous it seems to me, to the sentiment which the Hindus have introduced into their religious architecture; but they succeeded, at the same time, in imparting an almost idolatrous character to their monuments, in which they differed greatly from our French architects of the Middle Ages and the Renaissance, whose productions bear the stamp of the loftiest religious feeling. In civil architecture this opulence, on the other hand, displays a peculiar character of grandeur and nobility, which apppears in a measure to reflect the national pride and haughtiness. The palace of Monterey, the Casa de las Conchas and the University at Salamanca, the Alcazar of Toledo, the Palace del Infantado at Guadalajara, the Casa del Cordon at Burgos, the Casa de los Momos at Zamora, the municipal buildings and Exchange at Saragossa are the best known specimens of this majestic and sumptuous architecture; we omit from the list the Escorial, whose sombreness and isolation give it much more the character of a religious establishment.

We will rapidly review the monumental history of Spain, pointing out in the various examples cited the characteristics which we have briefly touched upon in the foregoing paragraphs.

It is necessary to indicate precisely, by dates, the period into which the history of Spain is naturally divided; we can in this way follow the development and vicissitudes of the arts in connection with the political changes:

Conquest of the Goths, 409–584; Hispano-Latin kingdom, 584–711.
Moorish conquest, 711.
Christian kingdoms of Navarre and Arragon established, 760.
Kingdoms of Castile established, 1005.
All northern Spain united into one kingdom, 1072.
Toledo conquered from the Arabs, 1226.
Conquest of Valencia, 1238.
Conquest of Seville and Murcia, 1243.
St. Ferdinand died, 1252.
Alphonso the Wise, 1252–1284.
Peter the Cruel (Alcazar of Seville), 1350–1369.
Ferdinand and Isabella, 1474–1516.
Conquest of Granada, 1492.
Charles V and his successors. Influence of Italy in the sixteenth, seventeenth and eighteenth centuries.

The first period of Spanish architecture, which we will term the Latin-Byzantine, to indicate the dual source of its style, is full of interest. Unfortunately, although its remains are comparatively numerous, the written documents necessary to an accurate chronological classification of them are wanting. It is, however, probable that the fragments of the Metropolitan atrium, the baptistery and the basilica of Merida are among the most ancient.

The sculpturing of the capitals and bases points to an indifferently skilful imitation of the monuments of the Roman period; we find, on the contrary, in the frieze decorations, in the walls adorned with pilasters, and, generally, in the embellishment of flat surfaces, an adaptation of Oriental forms, the essential element of which consists in the application of geometrical outlines to a running ornamentation. Not that an art can be seen developing here analogous to Arabian art, which created, by means of geometric elements, such a homogeneous and characteristic *ensemble;* but these designs are not without a certain originality, and their execution has many points in common with Byzantine, Syrian and Arabian decoration. It is quite probable that textile fabrics imported from the East may have furnished the linear theme, and as for the mode of execution, it must have been suggested by movable articles in carved wood or stone. A striking indication of this may be seen in the little Jewish ossuaries of the Judaical museum in the Louvre, or in the delicate objects in carved wood which the Kabyles of Algeria skilfully cover over with decorations cut into the surface, such as spoon-handles, folding-desks, small articles of furniture and even the moulds used in shaping bread and cakes.

The church and cloister of St. Peter and St. Paul at Barcelona offer a comparatively late type of the edifices of this period; the remarkable arrangement of the doorway (Figure 3) exhibits, in the lintel and the long consoles which serve as imposts to the arch, the characteristic decorative features of the style. The disposition of the impost consoles is very peculiar, and it is this particular example that has furnished me the key to the design of numerous similar constructions which I have discovered in the ruins of churches in Tunis belonging to the second Christian period. The simplicity of the arrangement bears a considerable analogy to certain dispositions in Arabic monuments of the eighth century, erected at a time when the traditions of the preceding periods were still in the fulness of their force.

Fig. 3. Doorway from San Pablo at Barcelona.

San Juan, at Baños (province of Palencia) presents another interesting example of this style; the quatrefoil disposed on horizontal friezes is employed here. It is found also at the same time in Syria and in Africa.

At San Miguel-de-Escalada (Ayuntamiento de Gradefes), carved paving-stones of this period are to be seen, the work on which is inspired to such a degree by the arts of the East as to appear almost Arabic.

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In the province of Oviedo, the Church of Santa Maria de Naranco (Figure 4) dates from the close of the ninth century, and is supposed to be the palace of King Ramiro, converted into a place of worship in the tenth century. There are tombs in it of the same period. It is constructed with numerous slightly projecting buttresses, and its characteristic lateral façades cannot be better compared than with the Sassanid edifices of Mesopotamia. We, therefore, encounter that Oriental influence which passed from Ctesiphon to Rabbat-Ammân and Kasr-Machitta, to be developed afterward in Syria and Hauran, where, coming in contact with Greek and Roman influences, it formed the mixed style to which the Christian monuments of Syria and Africa during the fifth, sixth and seventh centuries were due. San Adrian de Tuño (Concejo de Villaneuva) may be attributed to the same period.

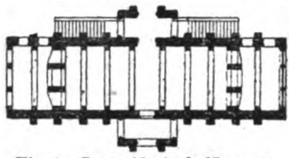

Fig. 4. Santa Maria de Naranco.

The hermitage of Santa Cristina (Concejo de la Pola de Lena) approaches more nearly to the Romanesque: it comprises a rectangular nave terminating in a lofty space, which serves as a place for the altar; an anterior portion may be considered as representing what we may term the narthex in the Church of Santa Maria de Naranco. The walls are pierced in the centre with four broad entrances, preceded by square rooms, of which the one in front of the narthex is a sort of vestibule. The edifice then presents a cruciform plan. It is cantoned with heavy buttresses, and both the barrel-vault and the groined vault are employed; the remains of the basilica of Guarrazar are of the same period, and it may not be out of place here to call attention to the votive crowns, known as the "treasure of Guarrazar," now in the Musée de Cluny. The exquisite character and workmanship of these offerings show what a marked difference existed between the civilization of Spain under the rule of the Visigoths and the barbarism of France under the Merovingians. At Toledo, there are numerous fragments of Christian sarcophagi which exhibit specimens of Latin-Byzantine decoration, and in one of the churches, which the Arabs converted into a mosque, paintings antedating the Moorish conquest have been discovered which bear the Oriental stamp still more than does the sculptural ornamentation. San Salvador de Val de Dios (Concejo de Villaviciosa) belongs to the last of the ninth century. San Salvador de Priesca is of the early part of the tenth century, and it may already be remarked, from the study of these different monuments, that the style in use in the kingdom of Leon is more energetic and simple than that of the monuments of the Asturian monarchy.

The ruins of the church at San Roman de Hornija show striking likenesses to the Christian decorative forms in Africa, as likewise the Church of San Pedro at Navas. No names of the architects of this period have come down to us, unless, indeed, the tradition which attributes the palace of Ramiro, referred to above, to Tioda be correct.

We will also cite the Camara Santa in the Cathedral of Oviedo, the Church of San Miguel de Linio and the Collegiate Church of Covadonga (Concejo de Cangas de Onis); a tomb in the last offers a well-preserved and characteristic example of the mausoleums of this period. It consists of a sarcophagus, richly decorated and borne on three powerful consoles, engaged in a niche, the flat surface of which is embellished with rectilineal ornamentation. The arch, on the contrary, bears quatrefoils similar to those of San Juan de Baños, and forming a broad archivolt.

Numerous remains of this style are still to be seen at Seville, Italica and Nieva.

The works just enumerated include only the most remarkable examples of the Spanish structures of the period preceding the advent of the Romanesque style. The list is, however, sufficiently complete to establish the importance of this school, perpetuating, as it did, in the Spanish provinces not conquered by the Arabs, during and even after the conquest, the traditions of Roman antiquity and the influences of Oriental Christian art; it likewise constituted in the kingdoms of Navarre, Arragon, Castile and Leon a well-defined transition between ancient art and the art of the Middle Ages, the first principles of which were laid down by the architects of the Romanesque era.

[To be continued.]

EMMANUEL FRÉMIET.[1] — IX.

Hunting Dogs. Fremiet, Sculptor.

ABOUT art-teaching and the Ecole des Beaux-Arts, Frémiet made these observations: "I never went to the School, and never wanted to, because the teachers in my time were a poor lot, and they treated Rude shamefully. If I had a son who wanted to follow sculpture, I would teach him the methods which I think are the best, such as my master taught me. If my advice were asked by a student of sculpture, I would tell him to choose a good master at the School and go into his studio. Not stay too long. The professors there are able men and understand good methods. This is all I care about saying concerning the School. Rude had a clear and sure method that permitted the student to study easily and pleasantly. He was very exact with nature, and taught perfect precision. He was a great friend of Monge, the geometrician, and made his statue for the city of Beaune. Science is an absolute aid in art."

Frémiet is exactly opposite to what Barye was as a friend to and teacher of pupils. The latter never was known to say anything to one, except, "O, its all right. Its first-rate. Go ahead." Many years before his death, he said this to an American of very keen art-instincts, who quickly responded, "Excuse me, Mr. Barye, but I don't see that it is all right. It looks to me all wrong." Barye stopped, turned around, looked sharply, and somewhat surprised at his pupil, but no wise disconcerted, and then added, "Very well. All you have got to do is to keep at and it will come all right. Go

St. George (Bronze Statuette), Fremiet, Sculptor.

ahead!" Millet had the same self-protecting reticence, with a considerable touch of peasant secretiveness.

He said to Karl Bodmer, who also lived in Barbizon for quite forty years, "Why should we give away to these young fellows the things we have learned by years of hard labor. Let them find out for themselves. If they work hard enough they will find out, if not, its no good to tell them." Frémiet takes the greatest interest in any student who gives evidence of talent, and will go to any pains to help him. Still, it is only the mighty bright ones that can get any real good out of such a master. Being the most distinguished pupil of

[1] Continued from No. 804, page 115.

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one of the greatest of French sculptors, I think Frémiet takes a special pleasure in the fancy of having a worthy one of his own. The relationship, almost indescribable, between a great master and a pupil equal to his opportunity, has seldom, if ever, had so fine an illustration as that which existed in the case of Rude and Frémiet. How just was the commanding fate that brought them together, and how cruel that which has failed to duplicate it in so many instances.

In what way has the antique helped you? I inquired of Frémiet. "Not much. Very little in fact. I like the horses of the Parthenon and the few pieces of Phidias, the "Theseus and Ilissus," especially. They are superb, great everyway — masterpieces. I care nothing for other sculpture." This answer surprised me at first, and puzzled me, for it was the first time that I had ever heard from the mouth of a great artist, so complete an expression of indifference to the charms of Renaissance sculpture, and the acknowledgment of so small indebtedness to the Greek.

To the great mass of what is accepted as the "art-world," this declaration is fearful heresy. Not to rely upon the Greek as the highest source of confirmation, to have no care for Signorelli, Donatello and Michael Angelo, and never to mention the vaunted educational value of museums, cannot be interpreted by the above mentioned art-world as anything less than an expression of unpardonable audacity and irreverence.

Most sculptors like the Renaissance, not perhaps as a stopping-place, but as a delightful study, an encouraging observation, a very human art-expression, a great page of true history, — especially those who study nature thoroughly. In it they see the whole scheme of a grand struggle of sentiment, an adorable tribute to subjects familiar, tender, symbolic and personal; a beautifully graded growth through generations; the successful expression of what they themselves are struggling for. Not impassive, grand, god-like, like the Greek, but themselves, living, and instinct with emotion.

"St. Michael."

"Creed."

"St. Cecillia."

Bronze Statuettes, Fremiet, Sculptor.

Neither the tone of Frémiet's nature, the character of his temperament, manner of expression, nor subject treated, bear any special or general relationship to any phase of Renaissance or Greek growth or development. He is independent and self-supporting, needs no encouragement or sympathy from any source, save nature, and from that he has got everything. No one has ever accused him of being inspired by anything else — not only in its general character and inexhaustible suggestiveness, but in its smallest detail.

He uses the plumb-line and calipers without ceasing, and relies upon well selected natural proportions of living models of every kind. He has been extremely fortunate.

In the matter of subjects Frémiet entered, like a lordly knight-errant, fully armed and equipped, into an unexplored realm, where he revelled in compositions of widely varying character. Heroes, warriors and mighty men, standing for races, epochs and ages. Gods in their day. Not to stir emotion, but to be wondered at, to live in space and with the elements. All in repose.

No tenderness, no heart struggle, no present life, telling of conflicts, and the fate of destiny.

Frémiet has made no less than eight large equestrian statues, one, life-size, two half-life, six or more life-size horses, for decorative and other purposes, and dozens upon dozens of statuettes. Far more than any sculptor known in history.

In spite of the fact that I knew well enough that he had been guided by an absolute reliance upon nature in every respect, in this great part of his work, it was natural enough that I should ask him if he had seen and studied the "three great equestrian statues." "No," he replied, "I never saw but one of them, the 'Colleoni,' when I was in Venice, in 1885." "Will you tell me what you think of it?" "Yes, I am very glad to give a rap at it. It is a horrid work. It is not a horse. He cannot move. A bad copy of the poorest kind of Roman sculpture. The head of the rider has character, but there is no man in the armor. The position of the armor is forced, unnatural, and stiff. The pose of the whole thing is exaggerated, without movement, and silly. The man especially is disgustingly vain."

In this as in many other art matters there is a decided difference of opinion between a certain class of artists and those who form, or lead, popular judgment. Frémiet is not alone in his condemnation of this generally accepted famous statue. Other artists, though not knowing, in any sense, a thousandth part as much of the subject as he does, have pronounced it lifeless in its pretence of movement, strained in design, and vulgar in execution. There is a reason for it all. The sculptors who made it were not only not the greatest ones of their time, but they knew very little about a horse. A fact evident enough to those who, with any degree of care, have studied horses, and their place in the composition of equestrian statues. It could not be expected that the qualities of the Greek frieze would be found in the first statue of any sculptor of the Renaissance times, even if he had known a great deal about horses and equestrian combinations. The detailed faults of the "Colleoni" are many, and are quite as caustically expressed by its critics, as those just mentioned.

The horse of the Padua statue is criticised because of its bad proportions, its heavy and clumsily modelled hind parts, and its general lack of life. The legs are regarded as especially cold in every respect. Its critics say, that it is evident that its author knew little about horses, and copied one for his purpose without any of the sincerity that characterizes his other work. The rider is rather fine, sitting well on a horse that does not move. The head of the latter is also considered fine. Yet, they say, the whole effect is attractive, because it illustrates the charm that a master can give to everything that he touches, even if out of proportion, and carelessly studied. It is for this reason that the best artists regard the "Gattamelata" as much superior to the "Colleoni." Of the latter, it is observed, that a worse example of inferior sculpture never makes a piece of decorative art.

The "Marcus Aurelius" also comes in for a rap. Its movement is said to be heavy, the horse uneven, and thin in execution, in parts, and the left fore-leg straight and stiff. In fact, it is far from being good Greek, if Greek at all. Fault is found with all these statues because they produce no impression of going along, though intended to do so. They urge, push along, heavily, and without concentration in either construction or movement. Showing little knowledge of the horse in any of its multifarious aspects. They are artificial, not natural.

Some artists prefer the "Colleoni" and the "Gattamelata," to the "Marcus Aurelius," though generally admiring the superiority of the pedestal of the latter.

The superiority claimed for Frémiet's equestrian statues over the three great ones, consists of the following points. (1) His horses are living, natural, and of fine type. (2) When they are intended to move, they do so; have moved, are moving, and will continue. (3) They are thoroughly and elegantly constructed, firmly and beautifully modelled. (4) They compose with their riders in every respect, in type, action, proportion, and sympathy, producing a

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perfect whole, in character with the subject. (5) Beyond all compare is the elasticity of their outline and action, the "Knight-Errant" and the first "Joan of Arc" being especially notable. Of the statues whose horses stand still, it is affirmed that they fully accord with the varied natures of their subjects, a variety quite as distinct as that shown in the horses that move, the extremes of which are seen in that of the "Saltimbanque" and the "Duke of Orleans." The monumental tranquillity of this statue, and its immense style, are qualities quite sufficient to carry its author into the admiring memory of the age. And what an appropriate place it has the good fortune to occupy! The almost impertinent readiness of the "Gallic chief" presents such a contrast to the "Duke of Orleans," that it requires a stretch of credulity to believe that they were made by the same hand. Serious students of equestrian statues regard these four as incomparably the best ones in the world.

The number of horses that the sculptor has made, the variety of type and character they represent, and the contrasts of color seen in the equestrian statues, is nothing less than amazing. What a gamut of extent and variety for one man to run through, and with such an unwavering and sustained power! It is right to call the statuettes equestrian statues, because they have all the air of large works. To see all the latter is a pilgrimage, which few are likely to undertake, but by placing the photographs of them side by side, a wonderful impression may be obtained. Such illustrious demeanor do they all have! Each in itself, respects its own gravity, like all great sculpture, and fills the nineteenth century with unknown wealth.

It seems unfortunate, judged from the everyday point of view, that neither individually nor collectively, have they brought the sculptor any private or public recognition, in the way of orders, with the exception of that from the Roumanian minister. On many occasions, during the past twenty-five years, have foreign governments, kings, princes and representative committees, including French noblemen, engaged French sculptors to execute equestrian statues, but not one has thought of Frémiet. Considered from one point of view this fact is an admirable and fortunate one, a part of the sculptor's quiet and dignified life.

All of his important works have come into the world for individual and private reasons, executed in the most undisturbed professional peace, and for their real appreciation they have remained individual and private. He has been able to live, not without great difficulty, and bring them into existence — an extraordinary thing for an artist of his genius, even in France. And, so, he has escaped all the annoying intrusions on professional privacy, the vulgar contentions of the art-world, the indescribable ignorance of committees, and the patronizing impertinence of princes.

It is not then from an everyday point of view that Frémiet is to be judged or sympathized with, but from one established by himself and the circumstances that have surrounded him. All things considered, professional and public indifference to such a contribution to the art of the world is not surprising, but that the curious writer on "*Horses in Art*," and the compilers of books, telling how horses have been and should be represented *in* art, all of whom have been obliged to rely upon borrowed material, should omit the enjoyment of national pride and boasting over the efforts of a countryman, is both surprising and amusing. In four long, illustrated articles, published in the *Gazette des Beaux-Arts*, by Colonel Duhousset, under the above comprehensive title, and in which reference is made to about everything concerning horses, from the Greek down, not an indication is given of the existence of Frémiet.

He closes his articles, however, very appropriately, with the commonplace recommendation to students, to study nature.

It is not to be wondered at that there are so few really good equestrian statues. The difficulties to be surmounted even with an artist born with the genius for that branch of sculpture, are enormous, vastly more so than in any other, and quite in keeping with its superior rank. It is very costly, the study of horses, and none but a rich artist can think of undertaking it. Then there is no more public demand for them than there is appreciation. The peculiar superiority of a fine equestrian statue, as a representation of the highest kind of sculpture, and as a work requiring special gifts, is recognized by but a few persons. Custom, the world over, has affirmed the dictum that any one can make a horse, just as our own college professor has said that "any one can make a statue." A few persons have also become convinced, for various reasons, that to make equestrian statues worthy of the name, special gifts are required, even more special than those with which makers of ferocious animals are endowed. Artists so favored by nature are about as rare as the lovers of fine living horses who can see any beauty in a fine horse as represented by a good sculptor. Thinking these things over, and wondering at the long and precious procession of horses Frémiet had made, their almost buried isolation, so far as the world generally was concerned, and the endless amount of study and pleasure they could give to those who may hereafter care for them, I asked the sculptor if he did not think that he had had good luck, in having such an extraordinary opportunity to study horses, and he replied, "Yes, the greatest kind of luck."

There is a difference of opinion as to whether France appreciates her great artists, living or dead. Some say that she does not, and as proof of this, they point to the lives and memories of Rude, Barye, Millet, Corot and many others.

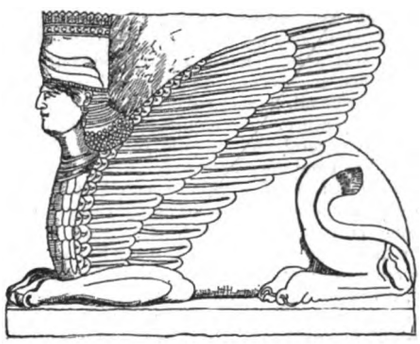
The opposite view is supported by the assertion that all such men "*arrive*" in their life-time, that is, that they are recognized by the best art-judges as masters, and see in life, or have after death, examples of their work placed in the Luxembourg, or the Louvre. Those who affirm that France has never cared for her great artists, do not regard this as an indication of appreciation, because the same thing is done for inferior artists, and marks no distinction of superiority, due to those of exalted genius. Such men, they say, should have been commissioned by the State to execute important works during their entire lives, receiving generous remuneration, freed from the annoyances of poverty, and permitted to follow their professions in ease and comfort. That would have been appreciation, the fulfilment of a duty owed to them by their country. Frémiet agrees with the last statement. "France cannot appreciate her great artists," he says. "She is loaded down with too many half artists, and to a very ordinary level. It is impossible for her to do anything for grand art; she is obliged to treat high and low alike. No discrimination is made in favor of her best men."

T. H. BARTLETT.

(The end).

ANCIENT ARCHITECTURE FOR STUDENTS.[1] — IX.

DETAILS OF ASSYRIAN ARCHITECTURE.



Assyrian Sphinx. Time of Asshur-bani-pal.

ONE of the most, if not *the* most disputed point in reference to Assyrian architecture, is the manner in which the buildings were roofed, and also as to how light was admitted.

Fergusson, who is very determined about the truth of his theory, is sure that, in the first place, the inner walls where the rooms are two or three deep, did not go up to the ceiling, and that the ceiling or roof over the central room, in the case where they are three deep, was raised to a higher level than the roof of the two outer chambers. By this means, he says, light and air were admitted to all three rooms, the inclement weather being easily kept out by means of curtains, which would close up the aperture. The only foundation for such a theory is shown by Rawlinson "to be the occurrence of a single bas-relief, representing in a city in Armenia what is regarded as a similar arrangement, but this is probably merely ornamentation, as there is no proof the spaces were pierced." Layard thinks that possibly the rooms were not roofed over entirely, but that a square or oblong space was left in the centre easily closed by a curtain or awning, observing that the flat roofs on beams are laid, to this day, in Mesopotamia, over a space almost equal to that of Assyrian halls. Herein Rawlinson partly agrees with him, because great timbers sufficient for the purpose were imported, the natural trees of the country being too small.

Place, in his discoveries, found in the interior débris at Khorsabad a large number of cylinders of terra-cotta, about ten inches high and thirteen and one-half inches diameter, and he thinks that by means of one or more (according to the size of the chamber) penetrating the roof at various places, the rooms would be sufficiently lighted and ventilated. No other use has yet been discovered to which these cylinders could be applied.

Now, as we shall see later, the Assyrians were great arch-builders; they were apparently well acquainted with both the round and pointed forms of the arch: some few bricks especially made for vaulting with a round arch, have been discovered, "concave at the bottom and broader at one end than at the other;"[2] but the greatest arch actually discovered had a span of only fifteen feet.

Messrs. Perrot & Chipiez, the latest authorities on the subject, although thinking M. Place's theory very justifiable, believe, themselves, that the rooms were in every case roofed with an arch of crude brick, a vault of round-arch section, such as have been discovered here and there. The immense quantity of rubbish shows that the structure of the roofs was very thick. Explorers have come across no beams that would support the theory of flat roofs, and as regards Fergusson's theory, these authors regard it as "purely fanciful." Assyrian clay is of a more plastic and tough character than any other clay known, and after all, when it has been proved that Assyrians constructed arches, it seems most reasonable to suppose that this was the manner by which they covered-in their chambers. Place's cylinders would come in as usefully in a vault as in a flat roof.

But this does not entirely dispose of the question, How was light admitted? One very important source of light was the doorway, the doors being of unusual height, quite out of keeping with the requirements for ingress and egress. Doorways from fifteen feet to twenty-two feet have been discovered at Khorsabad having a width from six feet to ten feet, even to the minor chambers, such as store-rooms and kitchens. "When," says Place, "we find architects so

[1] Continued from No. 793, page 151.
[2] Rawlinson.

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reluctant, as those of Assyria, to cut openings of any kind in their outer walls, using doorways of these extravagant dimensions, we may surely conclude, that they were meant to light and ventilate the rooms, as well as to facilitate the circulation of the inhabitants." The bronze repoussé bands of a door bearing the name of Shalmaneezer III, and which must have been nearly twenty-seven feet high, were discovered at Bulanac, and are now in the British Museum. "The heat of the climate, as well as the nature of his materials, led the Assyrian to suppress windows while he gave extraordinary dimensions to his doors."[1] It was more usual to finish a doorway with a round archivolt, although solid bronze lintels, sills and jambs have been discovered.

The arch plays a prominent part in Assyrian architecture, and the Assyrian may well lay claim to having been the greatest vault-builder of antiquity. The construction of the pointed arch with the Assyrians was excessively rude. The form was that of an arch, but the principle of the arch did not exist. They were similar, in fact, to those of the Egyptians, already described.

One reason, and that a very strong one, against Fergusson's theory of pillars supporting the roofs is that any remains of pillars in Assyria are of the rarest occurrence.

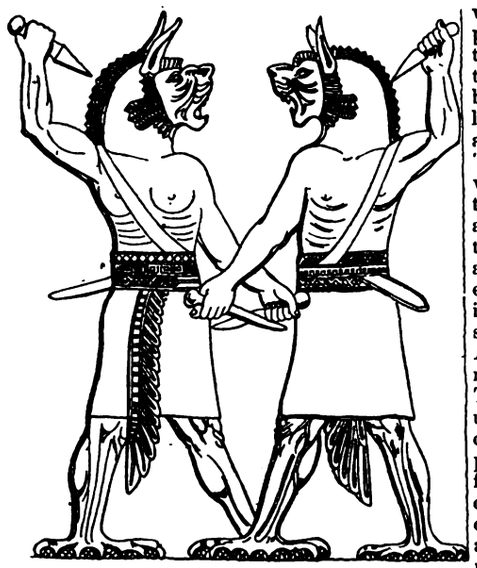
Layard discovered a set of circular bases or pedestals, and he suggests that they supported wooden posts or, may be, pillars of a covered way, by which the palace was approached. Pillars are constantly represented on the bas-reliefs, but recent discoveries have shown that, when a column was used at all, it was subordinately, a decorative rather than a structural feature. A colonnade was not understood, and it is only through careful and diligent research that the existence of columns at all has been demonstrated.

At Khorsabad, a fragment of a wooden pillar covered with metal, in the form of scales of a palm-tree, was discovered by Place. Only one fragment of a stone column has been found; that was at the same place, and by the same explorer. The capital and the portion of the shaft are cut out of one stone; the shaft is plain and the cap cushion-shaped, ornamented with lines raised on the surface and curved like festoons. A voluted cap is that which is generally represented in the bas-relief, but no example of the kind has actually been found. They were fond of representing pilasters and pillars supported on the backs of standing lions, or diminutive winged bulls, but these also existed only in bas-reliefs, not in reality.

Colossal figures we have seen were of frequent use for adornment to open courts or the entrances of palaces. They were also used as pilasters or engaged columns, adding considerably to the magnificence of the apartment in which they were placed. But there are none higher than 18 feet, and no seated colossi have been found at all.

The Assyrian sphinx was borrowed from Egypt, but "thoroughly Assyrianized."[2] An example has been found dating from the reign of Asshur-bani-pal with a woman's head, lion's body and immense wings extending upward and backward to the level of the top of the horned cap, and almost as far back as to the root of the tail, very similar to the wings of the winged bulls.

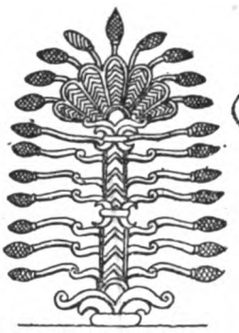
The bas-reliefs so often alluded to form one of the most important branches of Assyrian architecture. They are sculptured slabs, on which are represented scenes from the public and private lives of the monarchs who erected the palaces where they occur. Historical events, battles, feasts, hunting-scenes are all exhibited. Temples, houses, with foliage, trees and shrubs, are depicted, so that these slabs are of the greatest interest and importance in showing much of Assyrian manners and customs. The slabs were usually four feet or five feet high, placed like a frieze round the chambers and courts. They are of various materials — alabaster, gypsum and also limestone — and, with the Assyrians, take the place that statuary did with the Greeks, and that painting did with all European nations in later times. In Assyrian bas-reliefs three distinct periods of art may be traced. There was no background used in the earliest period. Sennacherib (704 B. C.), at Koyunjik, introduced backgrounds representing the actual scenes where the events took place. This forms the second period, while the highest type of the art, or the third period, is reached about 667 B. C. (Sardanapalus), where figures are used to the exclusion of vegetable forms. Detached figures, though rarely found, are given up for figures in bas-relief. Carvings, when found, are of a kind that leaves no doubt that their patterns are from textile fabrics, of which all sorts were produced by Assyrian looms. Some of the bas-reliefs from Sargon's Palace at Khorsabad represent the Children of Israel's captivity and the sufferings they had to undergo.



Evil Genii Contending, Koyunjik.

Susianian Horses, Koyunjik.

Mouldings are very rare, and female figures, according to the strict custom of the exclusion of women, which to this day obtains among Orientals, are never introduced, with the exception only of one or two instances. One of these instances is the noble woman, Semiramis, wife of Iva Lush (810 to 781 B. C.), a descendant of a long line of Babylonian kings, and who reigned in Babylon independently of her husband, and to whom we shall have to refer in the chapter on Babylonian architecture.



Simplest Forms of the Sacred Tree, Nimroud.

Final and most elaborate Type of the Sacred Tree.

Perrot compares the Assyrian with Egyptian sculpture in saying that the Egyptian loved *force in repose*, while the Assyrian *force in action*. But in Assyria there was no attempt made to preserve the portrait of the deceased. All faces are exactly alike, and, in fact, funerary statues are unknown. We may notice an advance in Assyrian statuary in an evident desire and attempt to represent life. All statues and figures in bas-relief are engaged in some action, either in connection with the office held by the person portrayed, or mythological priests are represented with the symbols of their office, kings strangling lions — all are depicted with an energy indicative of careful and conscientious attention to life.

Assyrian King. From a Rock-tablet near Khorsabad.

Hawk-headed Genius, Khorsabad.

All early nations seem to have agreed about the adornment of their statuary with color. On figures discovered at Nimroud, paint could be clearly discerned. The Assyrians used, however, in this connection only four colors: red, blue, black and white. Egyptians coated their statuary with stucco and painted it, while the Greeks colored parts of the actual stone or marble, such as the eyes, hair and drapery.

By the bas-reliefs, friezes of enamelled brick in color, metal plates attached to flat surfaces, bronze castings in low relief, and even colored-glass, the decoration of Assyrian palaces, must have been very complete and beautiful. The remarkable prismatic colors of

[1] Perrot & Chipiez.
[2] Rawlinson.

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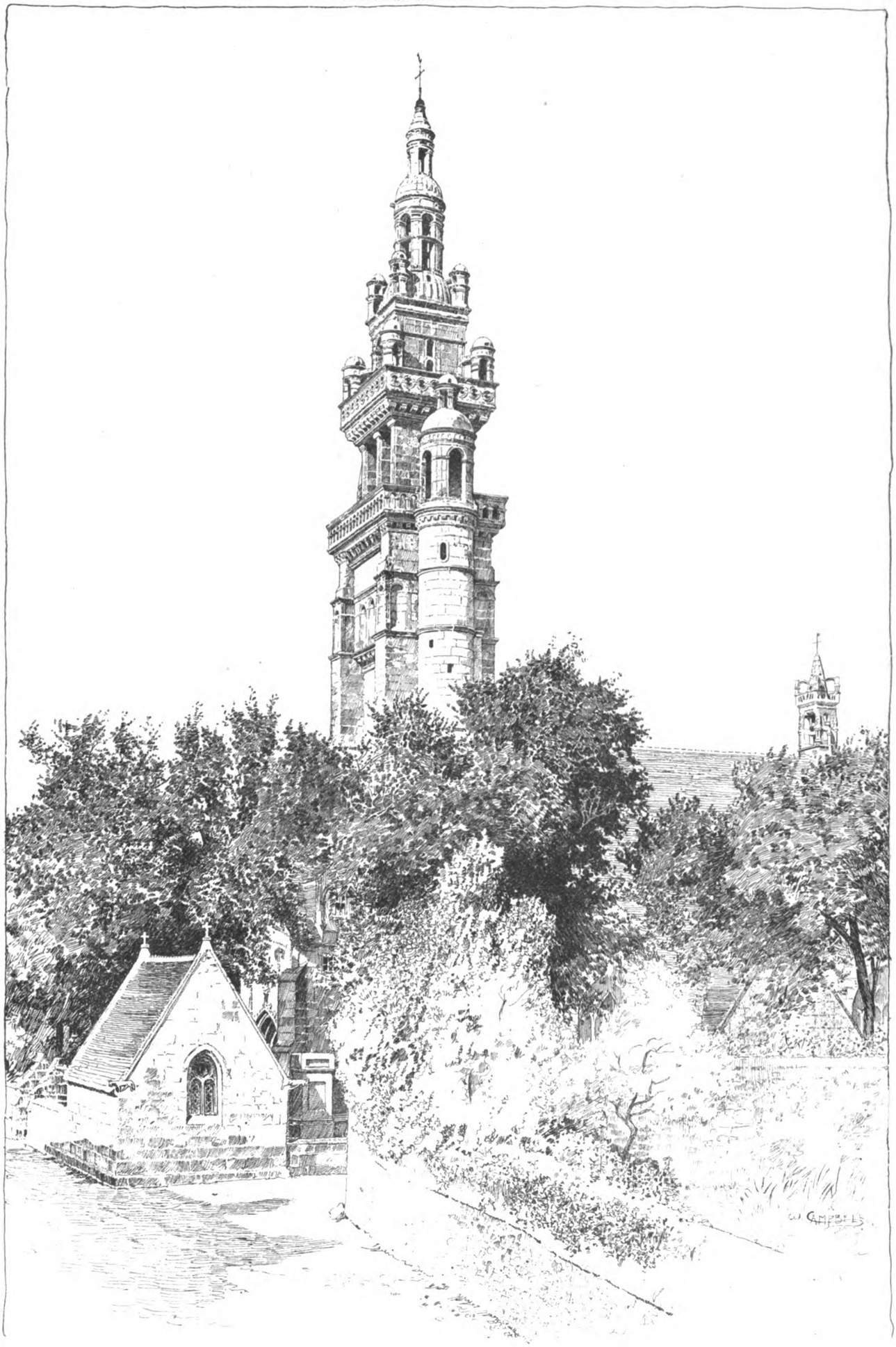

NOTRE DÂME DE CROATZ-BATZ, ROSCOFF, FINISTÈRRE, FRANCE.

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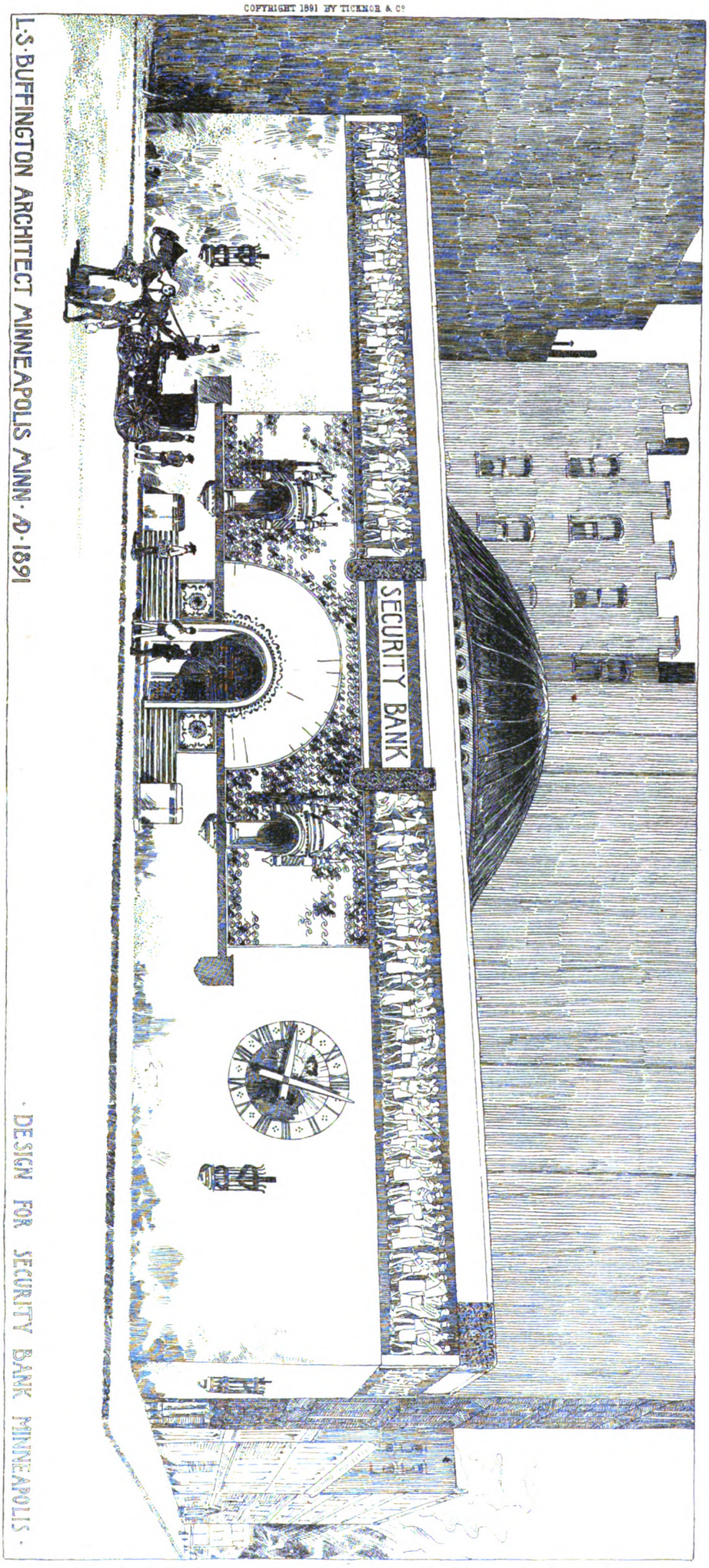

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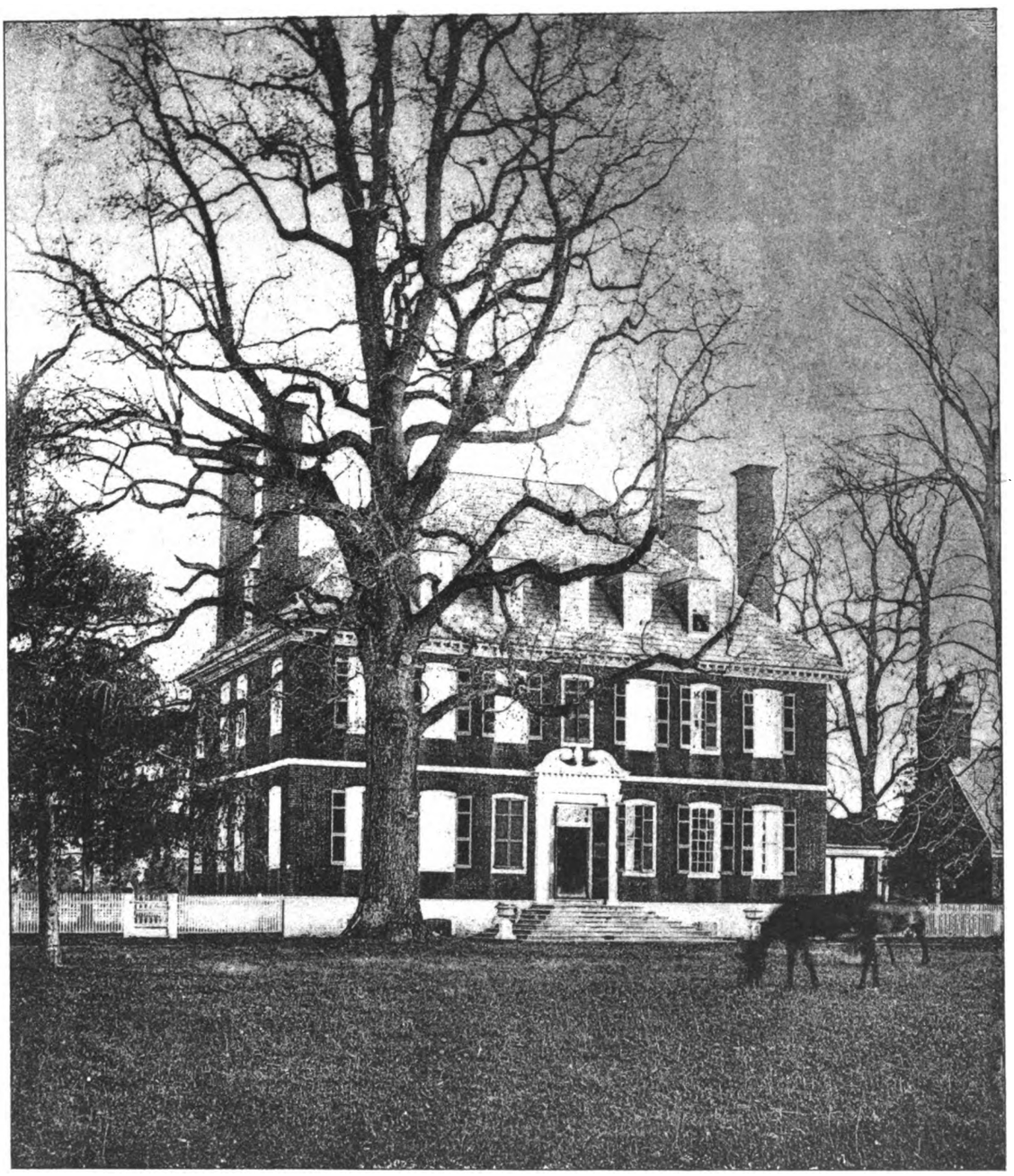

"WESTOVER" · ON · THE · JAMES · RIVER, · VA.

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FRONT · DOOR · OF · "WESTOVER"

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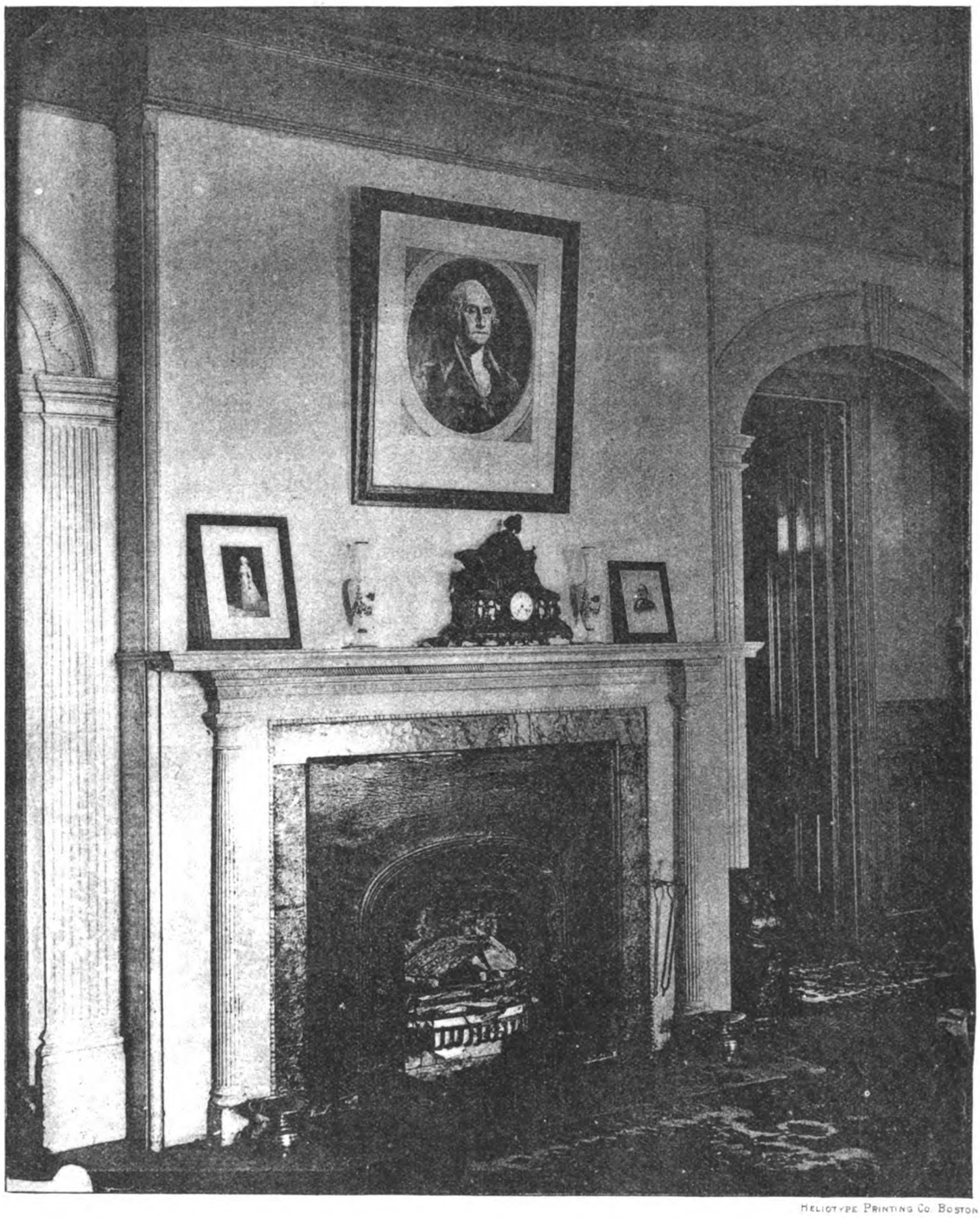

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MANTEL · IN · PARLOR · AT "BERKELEY" ON THE JAMES RIVER, VA.

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the glass are, however, due rather to the effects of time than to the process of manufacture or the skill of the artists.

Before leaving the subject of bas-reliefs, something must be said about an oft-repeated detail of Assyrian decoration which is particularly interesting. This is the "sacred tree." No inscriptions have come to light which would give any explanation of its history or meaning, but there is no doubt it was held in great reverence. It is sometimes represented alone, sometimes guarded by genii in adoring attitudes, sometimes, even, as being worshipped by royal persons. Further evidence of its sacred character may be gathered from the fact that it is found in conjunction with the Assyrian symbol of supreme deity, the winged disc, occasionally surmounted by a human bust. The tree is variously represented by the Assyrians, always conventionally, but most often as a tree of medium height, with trunk in the centre and branches starting from it on either side horizontally from the ground to the top of the trunk, and, radiating above that point, a leaf is indicated at the end of each bough, and usually a bunch of broad leaves at the foot of the trunk, as if it grew out of the ground. No attempt at perspective is made in the representation. Lenormant[1] says: "It is difficult not to connect this mysterious plant, which in every way asserts itself as a religious symbol of the first class with the famed tree of life and knowledge, which played so important a part in the story of the first sin."

Sewing had a great influence upon the art of decoration, and embroidery a far greater; it is the "prototype of all mural decoration." There are two kinds of ancient embroidery, "opus plumarium" and "opus phrygionium;" the first is the earliest kind and consists of colored thread laid over a groundwork in parallel lines, and this allows of great freedom of treatment; the second, is the cross stitch of canvas, the nature of the canvas necessitates the formation of squares as the stitching followed the pattern of the canvas, and we find examples of decorative work consisting of interlacing squares covering large surfaces of walls in Assyria. From this kind spring all Greek frets, diaper-work and such like mural decorations.

The author quoted above (Lenormant) has an important note on the Assyrian winged bulls. He says, "it is now absolutely certain that the word Kerûb is of pure Semitic origin and has been used as a substantive to denote a 'bull' in the sense of an animal strong and powerful beyond others. In Ezekiel the words, 'face of a cherub' and 'face of a bull,' are synonymous expressions. The colossal images of winged bulls, with human faces, with lofty cidaris, decorated with several pairs of horns flanking the gateways of Assyrian palaces, are associated with the Cherubim of the Bible."

A form of monument yet remaining to be described is the obelisk, differing very considerably from the obelisk of the Egyptians. Instead of being a square on plan, and finished at the summit with a truncation, the Assyrian obelisk has two wide and two narrow faces and finishes abruptly at a height no greater than thirteen feet or so, in three gradines or steps, an ornament thoroughly Assyrian but derived, not from the Egyptians, but from Phœnicia. An obelisk known as the "white" obelisk, now in the British Museum, was set up by Asshur-bani-pal, it is of white stone and commemorates by its sculptures and hieroglyphics the principal events of his reign. Its height is about thirteen feet and its base measures twenty-four by fourteen inches. Tapering slightly, it is finished by the usual gradines. Another, erected by his son and successor, Shalmanezer II, in the central palace at Nimroud, is similar in shape but of black marble; it is handsomer and of better material, but otherwise it is similar to that of Asshur-bani-pal. An interesting particular in the inscription on this obelisk is the occurrence of the name of Jehu, King of Israel, who appears to have given tribute of silver and gold to Shalmanezer II. Other obelisks have been discovered, but of them all, the one that has a special historical value is one discovered by Layard and illustrated in his "*Nineveh and its Remains.*" It commemorates a no less important event than the conquest of the Medes, who dwelt in the remote country of the confines of India, by an Assyrian king called according to Vaux,[2] Temenbar (or Shalmanezer II, 850 B. C.) and the story of the circumstance is illustrated by means of five rows of sculptured panels (twenty altogether) on each of its four sides beneath which is an inscription of two hundred and ten lines in the best preservation. It is only seven feet high and terminates in gradines.

Assyrian literature forms one of the most interesting discoveries of the century, and here we have preserved for us most valuable records of their history and customs. The so-called "Libraries" consisted of hundreds of tablets or flat bricks made of native clay and these are called the "books." On these, while soft, hieroglyphic representations and cuneiform inscriptions were imprinted. The tile was then baked and stored away with companion bricks or "books." Very little of their writing was committed to papyrus, but these clay libraries were very extensive. The principal one was collected by Sargon at Khorsabad (731 B. C.) and it contained an account of Babylonian astrology and astronomy in the cuneiform writings, translated into Greek by the native Babylonian historian, Berosus, about 470 years later. Another library (at Senkereh or Lussa) was devoted to mathematics and one or two tablets have been transferred to the British Museum from this collection. Nebuchadnezzar, King of Babylon, (605 to 562 B. C.) had two libraries of the same kind at Babylon, and others are known to have existed in some of the other cities.

[1] "*Beginnings of History.*"
[2] "*Nineveh and Persepolis.*"

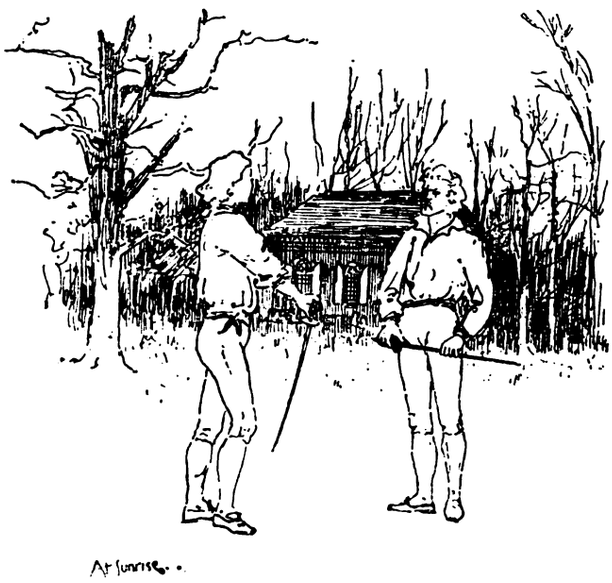
CITY OF DAMASCUS.

In a history gathered from the monuments of the great monarchies of the ancient world it is not easy to find a suitable place for the description of a city worthy of a place, but without those monuments which would assign to it its correct position. We must, however, take some notice of this great city of Damascus that has existed from the beginning of history to the present day. From being at one period of its existence the chief city of a wealthy and prosperous nation, the first period of its history came to an end under the Assyrian King, Tiglath Pileser, about 1150 B. C. Previous to that time we have many notices of it in the Bible, the earliest of which is Gen. xiv: 15, where it appears as a well-known place even at that early time. Josephus states that it was founded by Uz, the grandson of Shem, and he quotes Nicolaus, the Damascene historian, who says that Abraham resided there, who came with an army out of Babylon. Benhadad, King of Damascus, was murdered by his general, Hazell, after his return from the siege of Samaria, when Jehoram was king of Israel, 684 B. C., and Asshur-bani-pal was King of Assyria. All this time from 1150 B. C. to 650 B. C., Damascus remained a province of Assyria until, in fact, the Assyrians were overcome by the Medes and subjugated to them, when Damascus likewise changed its rulers. Since then it has been ruled over by Egyptians, Babylonians and Persians, whichever nation was dominating the country for the time being. In 64 B. C., when the Romans under Pompey invaded the country, it became a capital city again, and for twenty years the Roman viceroys or procurators held their courts there. For this very reason, the *duration* of Damascus — is the very one, which has destroyed the monuments of its earlier days. What ruins still stand there, date no farther back than the Roman period, and it would be necessary to pull down more-modern Damascus before we could unearth the ancient.

[To be continued.]

OLD COLONIAL WORK OF VIRGINIA AND MARYLAND.[3] — VI.

BERKELEY.



THE ancient place of Berkeley was probably settled soon after Shirley and by some of that company, of Sir Thomas Dale's, which located at Bermuda Hundred in 1611.

The gentle Thorpe, friend and teacher of the Indians who swarmed the banks of the lower James in those early times, was slaughtered here in the Massacre of 1622 by his treacherous pupils, on the ground where he had labored with such loving zeal for their enlightenment.

The present house of Berkeley was built a century later. A date cut in the bricks on the northeast corner of the house — 17 E H 25 — may be accepted as fair evidence of the age of the structure, which is very plain and unpretentious and lays small claim to any great interest of an architectural kind.

There is a broad veranda around the four sides of the house — a modern addition, and an innovation which must add greatly to the comfort of the place.

The old colonists were rather too orthodox in their careful imitation of the English models after which they built, and they used many features, which, though quite appropriate in the climate of the mother country, must have made their homes upon the lower James decidedly uncomfortable in the fervid summer heat of that favored region.

[3] Continued from No. 719, page 163.

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In our own day no one would forego, in a country house, the indispensable luxury of a generous veranda for the sake of an academic exactitude in style, but in the majority of the earlier colonial houses there was nothing to shelter the walls from the noonday glare. Perhaps in point of greater adaptability to conditions and circumstances our later methods are truer, in this respect at least.

The woodwork of the interior of Berkeley is simple but good.

The frieze and cornice in the principal rooms are very nice and refined, the illustration shows a very graceful mantel in the parlor, and the treatment of the arch on either side of the chimney-breast in this room is also worth studying.

Berkeley has not been well kept up. It has passed out of the hands of the descendants of its founders, the Harrisons of Berkeley, and has in consequence suffered many changes.

"Of all the ancient families in the colony," says Griggsby, "that of Harrison, if not the oldest, is one of the oldest. The original ancestor, some time before the year 1645, had come over to the colony; but as his name does not appear in the list of early patentees recorded by Burk it is probable that he purchased land already patented or may have engaged in mercantile pursuits. The first born of the name in the colony, of whom we have any distinct record, was Benjamin Harrison, who became a member of the Council and was speaker of the House of Burgesses, and died in the Southwark Parish, in the County of Surrey, in the year 1712, in his sixty-second year." Mr. Griggsby thinks it probable that his father was the Herman Harrison who came over in what is called in Smith's History, "the second supply," or Master John Harrison, who was Governor in 1623, and adds "that from the year 1645 to this date —a period of more than two centuries—the name has been distinguished for the patriotism, the intelligence, and the moral worth of those who have borne it."

Of the Benjamin Harrison of Surrey, born in Southwark Parish in 1645, an epitaph declares: "Here lieth the body of the Honorable Benjamin Harrison, Esquire, who did justice, loved mercy, and walked humbly with his God, was always loyal to his Prince and a great benefactor to his country."

The first of the name was a zealous friend of the church and a liberal contributor, his posterity have ever continued true to it, and the two last members, with their families, have done much to its partial

From the portrait of a lady of the reign of Queen Anne . . "Over the water to Charley"

revival within the last thirty years. The ministers have ever found their seats to be hospitable homes when in that part of the parish. They have set good examples in the religious teaching of their servants, and in order to promote this, have built a chapel between them for the especial benefit of the same.

WESTOVER.

LOOKING across the level fields from the generous veranda of Berkeley, the eye seeks out a group of tall trees, not far off upon the river side. Through the interlacing limbs and branches, bare in the late November days, one makes out the solid bulk of a great square building with conical roof and tall chimneys towering up among the tree-tops. The dull red of the old English brick is just apparent in a subdued glow of color. On the edge of the trees there is a perfect village of out-buildings, barns, stables, cow-houses, corn-cribs, the smithy, the chicken-house, the dairy and innumerable smaller appendices. A road winds across the farm-lands toward the buildings. It is the old manor-house of Westover, standing proudly beneath its ancestral oaks.

From the broad, smooth lawn which runs to the river bank on the south side of the house, one is impressed with the simple grandeur of the front. The brick walls are two stories in height, with a generous base, and fitly crowned with a fine sweep of roof. The only bit of exterior detail making the least pretensions to richness is about the doorway, which is flanked by broad, fluted pilasters surmounted by richly-carved Corinthian capitals, and crowned by the broken pediment so much used in the architecture of that day. The rest is but plain brick wall pierced, in absolute regularity, with windows. On the left [right in the reversed illustration] or west is a low wing containing the kitchen, and joined to the house by a covered way. Beyond is another out-building, and, farther on, the eye follows an old box hedge bordering the generous stretch of the gardens.

The too obvious modernity of a painfully whitewashed paling fence, joining the house on either side, rather hurts the eye, but in the mansion itself nothing mars the impression of aristocratic antiquity.

A broad and easy flight of stone steps, much worn and chipped and stained by time, leads up to the door, and, looking in through the open portal, one sees a great hall with stone floor and panelled walls, and a splendid stairway in rich old black mahogany, ascending by easy stages to the upper apartments. Everywhere there is breadth, simplicity, elegance, in the aspect of the interior. The state rooms open out of this great hall, which, by the way, has a door opposite the one just described. This door gives upon the rear or garden side of the house. There is a gravel walk running straight down to the gates, which are of wrought-iron tracery quite good in design. The gate-posts are surmounted by a couple of eagles made up of wood and tin in quite a fearful and wonderful way, and wearing, in truth, a very dingy and dejected air. Presumably, these birds have succeeded a pair of eagles in bronze, doubtless heraldic emblems of the family of Byrd. Upon this I am, however, without definite knowledge, never having had the luck to come across a book-plate or crest of the founder of Westover.

There seems to me always something very satisfying in the effect of one of these old colonial rooms. In the first place, they are generally, as at Westover, square in shape, and with good proportions of height of walls to floor-area. The eye rests with quiet pleasure on the low, plain dado, with low base and surbase of simple mouldings, not seldom enriched with some flutings or other carved work. Above this, the walls are covered with woodwork in large panels defined by rails and styles of good width, the whole surmounted by a good frieze and rich cornice projecting well upon the ceiling.

The ceilings are generally whitewashed, but frequently enriched with exceedingly delicate and graceful relief-work in plaster. The whitewash is not seldom the expression of some modern housewife's ill-directed efforts at neatness. At Mount Vernon, they found under the scales of lime in one of the smaller rooms a ceiling tinted in a soft tan color, upon which the rayons of plaster-of-Paris or putty in half-relief are charmingly brought out. The pictures of the drawing-room at Shirley will present all this I have been trying to describe about as well as views of any other house in Virginia. It is veritably a charming old house. The same treatment of interior is found at Westover.

There in the great panels hang the ancestors, looking blandly forth from their ancient canvasses, the sheen of their silks somewhat dulled and the bloom of their snowy necks a trifle faded, perhaps, and with a fine crackle over the surface, but showing an added depth in the tones of velvets and of the sombre backgrounds in which they have gained in suggestiveness more than has been lost of clearness of detail and brilliancy of color.

Westover possesses many wellnigh inestimable treasures of this sort. Its walls are enriched with the work of many a famous hand. There is an authentic Sir Godfrey Kneller, and even a Vandyck.

There are two Knellers, in fact, the portraits of William Byrd and his daughter Evelyn.

"Byrd of Westover" was a great gentleman, and while he was in London he cut a notable figure, as indeed he did also at the court of France. And among the noblemen whom he made his friends there was one, young Lord Peterboro' of a distinguished Roman Catholic family, who would have made sweet Evelyn his lady had not that irascible old Protestant, Colonel Byrd, who firmly opposed the match from the first, hurried the girl across the seas to Westover and there shut her up, to die, the legend hath it, of a broken heart—or of boredom, perhaps—for to a London-bred girl and one accustomed to the splendors of the Court circle of England, it may have been, at times, a trifle dull at this grand old home of her father's on the River James. Fancy that there were no roads of a passable character in those days, and that the gentry went about to one another's houses in pinnaces and rowboats, and also that in the sparsely settled country there were but a handful of people within reach of Westover, and one can readily believe that those were dreary days for the poor child so cruelly torn from the arms of her lover, and from the friendships of her youth. Her tomb is there in the garden near by among other monuments. There was a chapel there in Evelyn's time, rebuilt afterward at Evelynton.

In Colonel Byrd the Third's time the incumbent of Westover church was one Dunbar, who has left behind him the record of a life of not unquestionable saintliness.

He was indeed, even in those hard-drinking, free days, notorious as a drunkard and gambler. He carried a message once from Benjamin Harrison of Berkeley to Benjamin Harrison of Brandon. What was the cause of disagreement between those distinguished

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gentlemen, and what ever came of it is not clearly set forth, but the point is — and I think it is Bishop Meade who tells the story — the cartel was delivered through the kind offices of the parson.

He was himself one of the principals in a duel growing out of a disputed bet — upon a horse-race — and he is said to have wounded his adversary.

The first Colonel Byrd was the author of the Byrd Manuscript, an unpublished memoir, which has the distinction of being the only existing literary relic of early Colonial times in Virginia.

He was the founder of Richmond and of Petersburg.

His heir, the second Colonel William Byrd, of Westover, greatly increased the extent of the estate, by the acquisition of great bodies of land in Virginia and North Carolina.

This gentleman was educated in England, and afterward lived at Westover in the same princely state as did his father before him. The house was famous for hospitality and good cheer, nor has it yet forgotten to exercise, as of old, these generous qualities. The life was that of the landed gentry of Mother England. Culture and refinement in a high degree must have been the characteristics of the builders and dwellers of these fine old manors.

There is a restful simple dignity about them, unspeakably grateful to the modern observer weary at heart of the turgid over-decoration of the interiors of our great houses of to-day. There is reserve in the old work. There are broad plain surfaces where the imagination reposes comfortably. Decoration is focussed, not spread lavishly over everything. Perhaps the frieze of a mantel, very richly and delicately carved, or an elaborated entablature crowning the architrave of a doorway, gives the centre, the keynote, of the room. Nothing is forced. Odd effects are not sought. The result is restful, refined, satisfying. The aim of all good work should be to reach something of this sort, not necessarily following the model with too much servility, but certainly always holding the hand, leaving something undone, avoiding a too-startling originality.

The art which can stir the imagination and move the soul by simple means, is great art.

Following the lead of the few conservators of taste, who, surfeited with novelties of revived mediævalism, turned their tired eyes again with favor upon the homes of their fathers and with loving appreciation of the familiar old forms began slowly to reproduce here and there a bit of the old work, there is coming on a throng of imitators, a rushing mob of "Old Colonial" revivalists under whose feet will be trampled out of sight in a year or two, much of this quiet quaint beauty and grace of the old style. The wave is upon us and will inundate the land.

"Old Colonial" is the new catch-word of the trades. They make yards and yards of pretty little mouldings, which you can tack up on your old wood-work, and with a daub of ivory white added, you can accomplish cheap effects in pure Colonial. There are now "Old Colonial" wall-paper friezes to be had at the paper-hangers, and you are tempted with fenders and andirons heavily be-ribboned and quite smothered under wreaths and garlands of a gorgeous Colonialism, never attained in the actual old work, and all of the most brazen brass. It is hardly worth while to note that in the old stuff the ribbons and flowers were worked into the decoration of the mantel, of the frieze or of the ceiling, and not generally used to adorn the shovel and tongs.

And yesterday I saw in the window of a furniture concern a large panel of Moorish fret-work painted in old ivory, and further enriched with delicate pilasters and capitals in the most authentic Colonial.

The stained-glass people are turning-out some wonderfully rich things in Colonial forms, and, while there may have been no "cathedral glass" in the old houses, there really might have been, you know. A very old Colonial house with a roof of red Spanish tiles is, at least, convincing evidence of our emancipation from the slavishly academic adherence to style which marks the modern work of our brothers beyond seas.

But I am forgetting that there is yet another Colonel Byrd to be disposed of, and it will be remarked that the rank of colonel seems to have an inheritance pertaining to the first-born male child of a Byrd of Westover. It was, perhaps, entailed with the estates.

The third William Byrd was born in 1728, and in 1737 the present manor of Westover was built. He entered into enjoyment of his estates in the year 1744. He saw service during the French and Indian wars, and was at Fort Cumberland with George Washington in August, 1758, in command of a regiment of Virginia volunteers. He took unto wife Elizabeth Heil Carter, of the neighboring manor of Shirley, and subsequently, upon the demise of this estimable lady, was married to Mistress Mary Willing, of Philadelphia, by whom he had eight children, three of whom in due time married members of the Harrison family, one a Page, one a Nelson and one a Meade.

The Colonel lived much abroad, and was a man of fashion in the London of his day. Rather recklessly indulgent of his gambling proclivities, he left his estate in debt when he died in 1777.

The widow lived until the year 1814. She has been accused of plotting to assist Arnold, and letters from her were, in fact, found aboard one of his vessels which got aground in the river and fell into the hands of the patriots. At her death, Westover passed away from the family of the founder.

[To be continued.]

THE ITALIAN SPECIALTIES IN DECORATION AND THE INDUSTRIAL ARTS.—I.

INTARSIA, OR PIETRA-DURA WORK.[1]

ITALY, like every other country, has its specialties; and, as Italy is a particularly artistic country, so are the Italian specialties particularly concerned with matters of art. To study the history and development of these specialties, and their present practice, will be the object of a series of studies which I hope may not be uninteresting to my American colleagues.

I will begin to-day by speaking of the intarsia, or pietra-dura work, a Florentine specialty, which has fallen into lamentable decay; partly through the fault of those who have practised it in recent times and who have degraded it by falsifying its character; partly through the change of fashion, and partly for reasons of economy, which, in old Europe, and particularly in Italy, have arrested the development of all the arts of luxury.

The idea of beginning my observations by speaking of intarsia, or inlay of hard stones, is suggested to me by two circumstances: The first is, that in Florence a project is now under consideration for re-establishing the so-called "Opificio delle Pietre Dure," or Workshops for Hard Stone, the centre of the industry which I have to study; the second is, that in North America, to judge from what I have read,[2] there is a taste for inlaid stone-work, which is used in costly furniture following, apparently, in this the opinion of Ruskin the eminent and transcendental English critic.

Hard stone is, at present, more frequently found used as a decorative material in Asia and Europe than in America; but I believe that it will not be long before you will use it as it was once used with us. Work in such material, both from the cost of the stones, and the great labor involved, cannot be applied on a large scale. In Italy there are some sumptuous altars and altar-fronts, like the splendid high-altar of the Certosa at Pavia, and some chapels and boudoirs, but the work is more suitable to small surfaces, with modest surroundings.

The application of the work in hard stones, such as has been used in Italy, and seems to be coming into use in America, dates, in Italy, from the sixteenth-century. At the end of that century a sort of furniture came into fashion which was adorned with small columns and arches, directly inspired by the forms of architectural construction, so that, instead of furniture, some of the pieces resembled models of the fronts of palaces, even the windows and niches, in some cases, not being wanting. The style of these objects was a very impure Classic. Of these architectural pieces of furniture, which went by the name of "cabinets," there was in Italy, at the time of which I write, a veritable flood. The centres from which they spread were Florence, Milan and Venice. In Florence, they were inlaid with pietra dura, in Milan with engraved ivory, in Venice with mother-of-pearl and glass. Sometimes names very celebrated in the history of art were connected with these cabinets. One example, of ebony, with columns of lapis lazuli, agate and other precious stones, inlaid with miniatures representing the more beautiful Florentine ladies of the day, was, according to Baldinucci, executed by Bernardo Buontalenti (1536–1608) for Francesco dei Medici. Not less renowned is another cabinet, for which the eminent sculptor John of Bologna (1524–1608) modelled a series of bas-reliefs in gold, representing some of the scenes in the life of the same Grand Duke.[3] In connection with these pieces of furniture with pietra-dura ornaments, Vasari, the celebrated Plutarch of the Italian artists, mentions with honor the name of the Tuscan Bernardino Porfirio di Leccio (1601) whose works of this kind were numerous and magnificent. Among his other works is frequently mentioned a splendid table, which he executed for Francesco I, and which cost an enormous sum.

I have shown that the finest known objects of this sort were made by eminent artists for Francesco dei Medici, and it is certain that

[1] Intarsia, or combination of hard stones, must not be confounded, as it is by many, with mosaic. The manual processes are the same for both. The difference consists, substantially, in the material employed. In the pietra-dura work, the materials are very hard and precious, and the work laborious, while in mosaic the materials are mostly calcareous, easily worked, and of no great value.

[2] See Kuntz: "*Gems and Precious Stones of North America.*"

[3] This splendid work of art has been lost, or perhaps stolen or destroyed. The golden bas-reliefs, by John of Bologna, have, however, been saved, and are now in the Cabinet of Gems at Florence.

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Florence owes to this prince the development of pietra-dura work. The Grand Duke Ferdinand I, in the interest of the new art, provided an establishment for its practice on the Casino of S. Mark; from which it was moved, in 1558, to the first story of the Uffizi building. There were collected all the best Lombard and Tuscan workmen, with a considerable force of painters, engravers of gems, designers and workers in crystal, porcelain and hard stones.

I have said that in the establishment at the Uffizi some Lombards were united with the Tuscan workmen. This assertion may be questioned, as it is generally maintained that Tuscany alone practised the art of pietra-dura work; but it is certain that at the end of the sixteenth century there were in Florence, among the best of the "intarsiatori," a certain Giovanni Bianchi, who arrived about 1580, some Gaffurri, and others, who worked in the Uffizi establishment under the direction and supervision of Bernardo Buontalenti, the distinguished painter, sculptor and architect; and in the documents relating to the establishment these men are called Milanese; and this leads Lanzi to believe[1] that the invention of the combination of hard stones ought to be attributed to Milan, where, on account of its proximity to Switzerland, whence the supplies of precious stones were drawn, the art of putting them together had arrived at a high state of perfection. I am far from agreeing with this belief of Lanzi's; and it is not necessary here to discuss the origin of the art. Returning, therefore, to my history, I will observe that the origin of the Florentine manufactory, the only one in Italy which became famous, was anterior to the arrival in Florence of the Lombard workmen. This assertion is based on facts which cannot be denied, and which relate to that Bernardino Porfirio who executed works in pietra dura many years before the arrival of Bianchi in Tuscany. Documents prove that this Bernardino di Porfirio da Leccio had executed, in 1556, an octagon of ebony, inlaid according to the designs of Vasari; and, in 1558, he made another, similar to the first, for the prince Francesco dei Medici. This does not prove, obviously, in the eyes of disinterested persons, that while such an art flourished in Florence, it may not have been cultivated also at Milan; and we have positive proof of its existence in the Lombard capital, in the work executed in 1511, for the Certosa at Pavia, by the hands of Giovanbatista Sacchi, Francesco Briosco and Silvestro da Carate. These works consist in a remarkable series of altar-fronts, of a rather fantastic and vulgar design; so that we may conclude that for perfection and taste in the art which we are studying, we must still look to Tuscany, and to Florence, where the inlaying of hard stones prospered in the highest degree under the encouragement and protection of the Medici.

Although, during the short reign of Francesco I, charming works were executed in Florence, it was particularly under Ferdinand I that the royal manufactory of pietra dura began to give occasion for hope of a glorious future. Educated at the papal court of Rome, that prince had there conceived the wish to become the Mæcenas of artists, perhaps more from ambition than from any lofty instinct of mind. However that may be, after having instituted a system of supervision of the new establishment, Ferdinand I carried into effect, the idea already conceived by Cosimo I, of founding a magnificent chapel, in which should be erected splendid mausoleums for his predecessors and successors on the throne. He himself laid the first stone of the proposed edifice, behind the choir of the basilica of San Lorenzo, on the sixth of August, 1604, and confided the execution of the work to the architect, Matteo Nigetti, basing it on a drawing made by Giovanni dei Medici, who was well-versed in architecture. He intended that the chapel should have its walls encrusted with marbles and precious stones, and that the Establishment of pietra dura should have the exclusive right of providing this work, as well as that for the family mausoleums.

This sumptuous sanctuary of the dead, as has been well observed, may be regarded as having given life to the art of pietra-dura work. Its richness is marvellous, and Ferdinand I intended to make of it a perfect treasure. Such was the enthusiasm with which that prince determined to perfect the art of stone inlaying that he brought to the direction of the establishment at the Uffizi, the greatest artists of the time, Costantino dei Servi, Bernardo Buontalenti, Matteo Nigetti, Gianbologna Andrea Mariotti, called Il Meriga, Lodovico Cardi da Cigoli, Bernardino Barbaletti, called Poccetti, etc. The fame of the Florentine establishment of pietra-dura induced also a neighboring State to cultivate this artistic industry. France, through the shrewdness of Colbert, the great minister of Louis XIV, had gained from Venice the secret of the manufacture of glass and mirrors, and now attempted to take also from Italy the brilliant art of stone inlay. If the artist, Ferdinand Migliarini, who went to France with the purpose of initiating the French in the working of hard stones, had succeeded in his intention, France would have seen its desire gratified.

Better results were obtained in intarsia and pietra-dura work in Naples. During the reign of Cosmo III, Giovanbatista Zucconi and Raffaello Muffati were called to Naples to teach these arts, and a laboratory was founded there, the direction of which was confided by the King, Charles III, in 1738, to the excellent inlayer, Francesco Ghinghi. This laboratory was opened near the church of San Carlo alle Mortelle, in Naples, where it remained until the last years of the Bourbon domination. Arranged like that of Florence, the Neapolitan laboratory worked exclusively for the royal house. The altar of the chapel in the Caserta, with its surroundings, in Oriental granite, were the first efforts. The tabernacle, on which work was still continued in 1845, is perhaps one of the richest works ever executed by the Neapolitan establishment. It is entirely formed of amethysts, lapis lazuli, petrified wood, granite, agates and jaspers, of marvellous beauty.

The Florentine art of stone inlay, besides Naples, reached also the East Indies, through some Florentine artists, who, having travelled to the dominions of the Mogul in search of silicious stones, initiated into their art some of the color-loving people of the country. It was in this way that the tomb of Rai Mehal, at Agra, came to have its interior enriched with pietra-dura work in the Florentine manner; and at Delhi the walls and columns of the two audience-halls in the palace of the Mogul emperors, with the bath-rooms, are ornamented in the same manner; while, in the same palace, according to Doctor Bernier,[2] there is a dome, the interior of which is encrusted with precious marbles, in a manner very similar to that of the Medicean Chapel at Florence.

The mention of the Medicean Chapel naturally makes me turn again to the Florentine establishment, which, after so much merited glory, began to see itself little by little deserted by popular favor. After the magnificent works of the Medicean Chapel had been suspended, on the death of the Electress Palatine, in February, 1742, the Florentine pietra-dura laboratory was reduced to the production of works of little interest. In this unhappy condition it remained until the accession of Ferdinand III, of Lorena, who called the architect Niccolò Gaspero Paoletti, and commissioned him to study the most available method of completing the Chapel of the Medici. The political convulsions of 1793, however, interrupted these studies, and it was not until 1818 that the incrustations of the walls of the Chapel were recommenced.

But for the Florentine establishment was reserved a sad fate. After the political overturn of 1859, it became State property, and dragged along a sterile and useless existence, which is still continued. From time to time various Florentine journals have called attention to the lamentable condition of the establishment, but without result. Several plans have been proposed for its benefit, but, to the present day, the generous schemes have resulted in no generous deeds. Quite recently, the Council of the Florentine Commission of Fine Arts, after serious consideration of the enervated state of the "Workshops of the Hard Stones," approved a resolution in which it expressed the wish that the establishment, instead of continuing to occupy itself with commissions, which was once its glory, would concern itself with more practical labors, such as the restoration of monuments.

So ends everything in this old world!

Having finished the history, let me speak of the practice of the art, as it has been carried on in Florence. The silicious stones which compose the decorations are divided into small pieces by means of a wire stretched by a wooden bow, and fed with powdered emery. This answers the purpose of a saw, which is managed by hand, and cuts the stone into small pieces, which are sorted, and form the painter's palette. The intended decoration is drawn in outline on paper, like a cartoon for tapestry, and, when finished, the drawing is cut into sections, corresponding in number to that of the artists who are to carry it out in stone. The chief of the establishment directs the general execution of the design. The joints of the several portions are fitted with extreme care, by means of a file, formed by dipping a metallic rod into emery. The bits of stone are held temporarily together by a mastic of plaster and wax, and are finally bedded in plaster for permanent security.

The next step is the smoothing and polishing. The first is done by rubbing with a "planer," supplied with emery, and, when this process is complete, the final polish is given with very fine emery, applied first with a smooth piece of stone, and afterwards with a board, covered with cloth.

The manual part of the art of intarsia in pietra-dura is, therefore, very simple. Nevertheless, until the first decade of the present century it was kept a profound secret, and was then only revealed by some workmen, who had deserted the Florentine establishment, and betrayed its mysteries. One of these, Gaetano Bianchini, after leaving the royal establishment, devoted himself to the endeavor to find a means of cheapening the process. He succeeded in this, by the simple process of substituting for many of the hardest and most costly stones calcareous materials, shells, and other soft, but agreeably colored substances, which were easily worked. To this variety of the art, Bianchini devoted much intelligence and enthusiasm, and before his death, in 1866, he had obtained noteworthy results.

Alfredo Melani.

(To be continued.)

Painting the Forth Bridge. — As some curiosity has been expressed as to the quantity of paints and oils used in the construction of the Forth Bridge, Messrs Craig & Rose, of Glasgow, who held the contract, have made up a statement of the amounts actually supplied, and these were found to be as follows: Machinery and illuminating oils, 980,072 gallons; paint oils, 35,527 gallons; paint, 250 tons. It is computed that the quantity of oil used would have been sufficient to float one of Her Majesty's first-class cruisers, and sufficient to cover 1,100 acres, or nearly two square miles of surface. — *Specialties.*

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[1] "*Storia Pittorica dell' Italia.*" Vol. I, p. 295.

[2] "*Memoirs on the Empire of the Grand Mogul.*" Paris, 1861.

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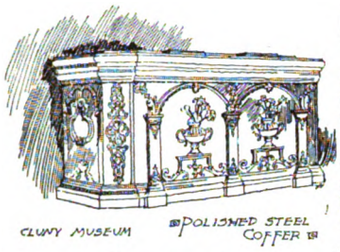
HYDRAULIC MINING.



ONE of the most noteworthy features in many portions of the gold region, the San Francisco *Chronicle* says, is the elaborate system of water-supply for the use of the hydraulic mines, and the tremendous changes which were the result of the few years during which hydraulicking was at its height. So great have been these changes — hills washed away, valleys filled up, others created — that in many localities the entire landscape has been altered. The old proverb ascribing the power to remove mountains to such as had faith only to the amount of a grain of mustard seed has never been exemplified, but the hydraulic miners have afforded the most ample demonstration of their ability to move mountains in the search for wealth. Lofty mountains have in fact been brought low through no other agency than the pipe line, the monitor, and the sluice, and the tremendous power of water never received such an exemplification as in the history of the hydraulic mines of California.

Monument to William and Frederick at Giebichenstein. From *Ueber Land und Meer.*

There are, indeed, so many remarkable facts connected therewith that, were they not abundantly substantiated, one might well be pardoned for receiving their relation with incredulity. One might not believe that a stream of water issuing from a nozzle or pipe, six inches in diameter, and with no other force but gravity behind it, would have much effect at any considerable distance from the aperture, yet such an apparently insignificant stream, with a fall behind it of 375 feet, will carry away a solid boulder weighing a ton or more at a distance of 50 to 100 feet, while at a less distance it will toss such a boulder about as a boy would throw a pebble.

The velocity and force of such a stream as it issues from the nozzle of the monitor is something terrific. The column of water is solid — so solid that if one were to undertake to thrust any object into it, it would make no more impression than if it were iron instead of liquid. If a crowbar or other heavy object be thrust against the stream it would be snatched from the hand and thrown to a great distance as if it were a feather weight, while the man who should firmly grasp an axe and attempt to cut through the stream would undergo an experience that he would remember for many a day.

If a man were to receive the full force of such a stream at a distance of a couple of hundred feet, even though the impact be momentary, he would be killed as quickly as though struck by a cannon-ball. He might escape being mangled, but the breath would be most effectually and suddenly expelled from his body.

At 400 feet from the nozzle, a six-inch stream with 375 feet fall, swung momentarily against the trunk of a tree will denude it in a second of the heaviest bark, as cleanly as if an axe had been used. Whenever such a stream is turned against a gravel bank it cuts and burrows into it in every direction, gouging out great caves, causing thousands of tons of earth to fall, which is in turn quickly disintegrated and washed into the sluices. Boulders so heavy that a man can scarcely lift them are tossed about like chaff, stumps and trunks of trees are thrown to one side like straws, and the work of destruction goes on at a pace that is appalling. If one who has never seen a monitor in operation under full head, could imagine the ordinary stream from a fire hose magnified about a thousand times, he would be able to form some conception of its power.

The water is brought in open ditches or flumes, sometimes from a great distance, around mountain sides and across valleys and ravines. When the vicinity of the mine is reached, a box is put in, from which a pipe conducts the water to the point where it is to be used. It is the distance between this box and the level of the monitor that gives the pressure. With from 300 to 450 feet fall the execution done is tremendous. At the monitor the water is conducted into a still smaller pipe, the compression giving it still greater force. The monitor is constructed something like the ordinary hose-nozzle, but has a ball joint that permits it to be swung in any direction. It is balanced with weights, and by means of an ingenious device, known as a deflector, the tremendous stream can be turned in any direction by the slightest force: almost the weight of a finger will suffice to direct the movement.

Easily as it is managed, however, the monitor occasionally becomes uncontrollable, and when this happens a scene of destruction and even death ensues. The pipe sways to and fro at its own volition, and the stream flies first in one direction and then in another. If the miners are not warned in time to get out of range, they may be mowed down as if by the discharge of a volley of grape. Sometimes the runaway monitor seems as if manipulated by some bloodthirsty monster, and appears to be deliberately turned upon the fleeing men, following them as they fly in every direction and overtaking them before they can reach a place of safety. In one case a sluice-tender, hearing an unusual noise, raised himself above the edge of the cut in which the sluices ran just in time to receive the full stream square in his face and chest. He was knocked down, thrown into the sluice and

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washed away. When found his body had not a stitch of clothes upon it, and apparently every bone in it was broken.

When a monitor gets away from control in this manner, there are two things that can be done. The water may be shut off at the head-gate, a process involving much delay and perhaps loss, or some brave man may rush in and get to the monitor without being struck by the stream. To do this requires agility and pluck. The stream is liable to box the compass inside of a minute, and its course must be watched and the probable direction noted. Then over the rough surface the man must hasten, careful not to make a misstep, and at the same time ready to flee should the erratic stream betray a tendency to change its course so as to endanger life. There have been many hairbreadth escapes and some thrilling exhibitions of bravery under such circumstances as this, and it has been only by the exercise of the greatest coolness and bravery that great loss of property and life has been prevented.

A. J. Bowie, of San Francisco, in his work on hydraulic mining, states that the stream from a six-inch nozzle, with 450 feet vertical pressure, delivers a blow equal to 588,735 foot-pounds per second, equivalent to 1,070 horse-power. When one comprehends this fact, he will be abundantly prepared to believe almost anything that could be said about the power exerted by such a stream.

With a force such as that exerted by the stream from a monitor, it is apparent that a tremendous amount of material can be washed away in a very short time. The quantity removed depends, of course, upon its nature, whether loose soil, ordinary gravel, or cement gravel. In some places, under favorable circumstances, as high as thirty-six cubic yards to each inch of water have been removed in twenty-four hours. With a flow of 500 inches the bulk removed each day is thus seen to be enormous. In cement gravel, the amount handled daily is as little as three cubic yards per inch. The quantity handled daily is, however, almost entirely dependent upon the grade of the sluices. In the case of the highest amount just mentioned, the stream had a fall or head of 350 feet, the banks were 100 feet high and the sluices had a grade of one inch to the foot, while, 1,000 inches of water were used. Under such conditions and with such results, it must be apparent that the removal of mountains is only a question of time — and not a very long time, either.

Some idea of the immense amount of earth and gravel moved by the hydraulic mines of this State can be gathered from some recently published statistics upon this point. During the height of the hydraulic industry there were in use from the Feather, Yuba, Bear, and American Rivers, Butte Creek and the two Dry Creeks, a total of 10,650,505 miner's inches of water each twenty-four hours. At an average of three and one-half cubic yards of gravel to the inch, there was thus washed away daily 38,600,000 yards of material. This is a low estimate. As an actual fact much more was carried away. But the amount stated represents a mass of earth 500 yards long, 356 yards wide and 200 yards high. With such a tremendous quantity washed away every twenty-four hours, it can readily be understood that no great length of time need elapse literally to move mountains and cast them into the sea.

THE MONEY VALUE AND REAL USEFULNESS OF ALUMINIUM.

A CORRESPONDENT writes from Springfield, Mass., to the New York *Tribune* in the following unflattering vein as to the real usefulness of the new metal:

"It is interesting to watch certain crazes which at certain times in history have taken hold of and still affect the minds of men. Thus, the tulip craze, the South Sea craze, the balloon craze in the beginning of this century and end of the last. In the present age we may notice the aluminium craze. How people will invest thousands of dollars on hearsay evidence, when they could ascertain the truth by buying twenty-five cents worth of pure aluminium wire or sheet, belongs to the oddities of capital gone crazy. The yarns about aluminium are so numerous and are repeated in so many bold and frank lies that it seems almost a vain task to try to set people right.

"Now, Jules Verne, the champion writer of scientific fancy, never uses aluminium much in his fiction. He knows too well that it is no good. In '*De la Terre à la Lune*' he uses a large aluminium bullet, not because of its strength but because it is so light.

"Not long ago, a card from persons interested in the making of aluminium came to me stating that aluminium is as hard as steel. All wrong! The purer, the softer. Pure aluminium is just a trifle harder than ordinary cheap zinc or spelter, which can be soldered, threaded and drilled without difficulty, while pure aluminium cannot be soldered reliably, and for working is one of the 'nastiest' metals in existence. One great point in its favor, but only a point of skin-deep beauty, is that the aluminium rust forming in the air is white, while it is brownish red on iron, green on copper and gray on zinc — but aluminium tarnishes readily, especially in salt air. Salt water acts upon it far more than it does upon iron, and a ship built of aluminium would be full of holes after one trip around the globe. Therefore, for ship buildiug and all parts exposed to the water it is even intrinsically inferior to iron — therefore, not worth six cents a pound.

"For roofing it is vastly inferior to galvanized-iron, because it cannot be soldered, and much inferior to zinc — therefore, not worth five cents a pound. For vessels to be used in the kitchen, it could only be employed if salt was kept away, but with salt present, it would not have the slightest advantage over ordinary tin pails — therefore, would not be worth eight cents a pound. For parts of machinery where strength is required, weight for weight, it is not as strong as iron. As such iron can be bought for four cents a pound, aluminium would be worth less than that; for the same strength, aluminium would be four times more bulky. For spoons and knife-handles, where no particular quality except looks is called for, it might be worth as much as tin, say twenty-two cents a pound. The drawback in that use would be its great softness, as it soils the fingers when handled, like lead. The only use for which, at present, pure aluminium may take, with advantage, the place of longer known metals, is for electric appliances and wires. For the same diameter, aluminium is twice as good a conductor as iron; its weight is almost exactly one-third, but its strength is only one-fourth, so that the wire could only be stretched three-fourths the distance over which, now, iron wire is stretched to keep the same relation between weight, strength and sagging.

"For these purposes aluminium might be worth twelve cents a pound. It could be made harder by alloying it, especially with silicon, but even the hardest aluminium, short of aluminium bronze (which is essentially ninety per cent copper) I met with was only about the strength of brass. The alloys of aluminium have all been made and tried thousands of times, but no value has been found in them which would make the aluminium worth more than copper — say, perhaps eighteen cents a pound. The aluminium bronze keeps fairly bright, but when made in its proper proportion is extremely hard to work. In this bronze, aluminium shows at its best, but does not come up to good steel in ease of handling and working. One advantage is that the bronze is elastic and springy, even when almost red-hot. It consists essentially of ninety per cent copper and ten per cent aluminium. How much the metal is worth for advertising medals, for plaques and other uses of a more sensational character, is, of course, impossible to estimate. Its value ranks with that of the chromo. At present, its greatest use lies in the magnetic power which it has for greenbacks, and in proving the defective experience of capitalists.

"While, therefore, as will be seen from the frequent examples quoted, the true value of aluminium does not lie much above that of zinc, which costs six cents a pound, the cheapest aluminium in the market is held at $2.25, and the manufacturers are already compelled to send around circulars, in which you may read between the lines: 'Tell us some use of aluminium.' There is not a single application, at present, in which aluminium ranks intrinsically above the value of the same weight of copper, which is sixteen cents a pound. Even chemically, it has not the energy of sodium, potassium, magnesium, and in an extensive practice as a chemist I haven't had a single use for aluminium in fifteen years." C. M.

THE MONUMENT TO THE TWO EMPERORS AT GIEBICHENSTEIN.

THE monument to the Emperors William and Frederic was unveiled on October 18, 1890, at Giebichenstein, near Halle. The sculptor, the late J. Kaffsack, has embodied in his conception more real art than is found in any of the many monuments to the late Emperors which are springing up all over Germany. The simplicity and beauty of the composition, which is let into the living rock in the face of the cliff above the river Saale, are enhanced by a singular felicity in the choice of location — in a green landscape surrounded by lofty cliffs, with the river below.

The mighty bronze shield, surrounded by laurel and bearing the profiles of the two Emperors, suggests a votive offering placed in thankful veneration at some shrine. A powerful Valkyrie-like figure indicates what the two great leaders in war have been and will ever be to their people. With the left hand she supports the shield and holds above the heroes the palm-branch, while the drawn sword in her right marks her the victress of the dragon of enmity and disloyalty, which, threatening destruction, has come forth from his cavern. Strong and sure in the consciousness of her power, the protectress stands, looking out clear-eyed and calm over the Fatherland, earnestly determined to preserve the peace which has been won and ever ready to raise the lowered sword and seize the shield leaning against the rock at the call of duty.

The monument is built of Kelheim marble, a stone which harmonizes well with the bronze, and rises in majestic proportions from the cliff and the cavern which has been cut into it. The figure of the Valkyrie is three and one-half metres in height, while that of the entire composition is six and one-half metres. The diameter of the portrait-shield is more than two metres. — *Ueber Land und Meer.*

A Hittite Bas-relief. — The Louvre Museum in Paris has been enriched by an interesting bas-relief attributed to the Hittites. Only a very limited number of Hittite sculptures have hitherto been discovered; all of them are curiously realistic and, though sometimes very clumsy, they are always natural and naïf. The new bas-relief represents a stag hunt. — *New York Evening Post.*

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THE ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

STORE OF MESSRS. A. T. DEMAREST & CO., FIFTH AVENUE, NEW YORK, N. Y. MESSRS. RENWICK, ASPINWALL & RUSSELL, ARCHITECTS, NEW YORK, N. Y.

[Helio-chrome, issued with the International and Imperial Editions only.]

"WESTOVER," VA.

SEE article elsewhere in this issue. This subject and the two others illustrating the article on "Old Colonial Architecture" are reversed in printing.

MANTEL IN THE PARLOR, "BERKELEY," VA.

SEE article elsewhere in this issue.

FRONT DOORWAY, "WESTOVER," VA.

SEE article elsewhere in this issue.

DESIGN FOR THE SECURITY BANK, MINNEAPOLIS, MINN. MR. L. S. BUFFINGTON, ARCHITECT, MINNEAPOLIS, MINN.

HOUSE FOR FRANK G. RANNEY, ESQ., ROCHESTER, N. Y. MESSRS. BLOCK & BARNES, ARCHITECTS, ROCHESTER, N. Y.

NOTRE DAME DE CROATZ-BATZ, ROSCOFF, FINISTERRE, FRANCE.

[Additional Illustrations in the International Edition.]

CEILING DECORATION IN THE HOFBURG THEATER, VIENNA, AUSTRIA. BARON HASSENAUER, ARCHITECT. HERR CHARLEMONT, PAINTER.

[Gelatine Print.]

SIDE OF THE NEW NATURAL HISTORY MUSEUM, PRAGUE, BOHEMIA.

[Gelatine Print.]

TWO DECORATIVE LETTERS, EARLY SEVENTEENTH CENTURY.

WEST-END OF HOLY TRINITY CHURCH, SLOANE SQUARE, LONDON, ENG. THE LATE J. D. SEDDING, ARCHITECT.

INTERIOR OF HOLY TRINITY CHURCH, LOOKING EAST.

THE CHANCEL GATES IN HOLY TRINITY CHURCH.

THE PULPIT, HOLY TRINITY CHURCH.

DURHAM CATHEDRAL.

NOTES AND CLIPPINGS

TWELVE NOTABLE BRIDGES. — There are still remaining bridges of great antiquity built by the Romans, says a writer in *Calvert's Almanac*, but we have no authentic record of the earliest history of so useful a contrivance.

Some remarkable specimens of bridges, constructed under the most difficult circumstances, are to be found in different parts of the world, and which are considered great feats of engineering skill. We take the following 12 as being amongst the most notable: —

1. The enormous dimensions of the Forth Bridge place it far in front of any bridge in the world. In mere size it is the biggest of the giants, and it is the greatest triumph of engineering science in the world.

2. Brooklyn Bridge was commenced, under the direction of J. A. Roebling, in 1870, and completed in 13 years. It is 3,475 feet long, and 135 feet high. The cost of building was little less than $15,000,000.

3. The Lagong Bridge, built over an arm of the China Sea, is 5 miles long, with 300 arches of stone, 70 feet high and 70 feet broad and each pillar supporting a marble lion 21 feet in length. Its cost is unknown, but much exceeds that of the Forth Bridge.

4. The new London Bridge is constructed of granite, from the designs of L. Rennie, and considered amongst the finest specimens of bridge architecture. It was commenced in 1824, and completed in 7 years, at a cost of about $7,500,000.

5. The Bridge of Sighs, at Venice, over which the condemned prisoners were transported from the Judgment Hall to the place of their execution, was built in the Armada year, 1588.

6. The Bridge of the Holy Trinity, at Florence, consists of three beautiful elliptical arches of white marble, and stands unrivalled as a work of art. It is 322 feet long, and was completed in 1569.

7. The Niagara Suspension Bridge was built in 1852-1855. It is 245 feet above high water, 821 feet long, and the strength is estimated at 12,000 tons.

8. The Rialto, at Venice, said to have been built from the designs of Michael Angelo, consists of a single marble arch, 98 feet, 6 inches long, and was completed in 1589.

9. The Britannia Bridge crosses the Menai Straits, Wales, at an elevation of 103 feet above high water. It is entirely of wrought-iron, 1,511 feet long, and was finished in 1850. Cost $3,000,000.

10. The oldest bridge in England is a triangular bridge at Croyland, in Lincolnshire, which is said to have been erected about A. D. 868. It is formed of three semi-arches, whose bases stand in the circumference of a circle, equidistant from each other, and uniting at the top.

11. Clifton Suspension Bridge, near Bristol, has a span of 703 feet, and a height of 245 feet above the water. The carriageway is 20 feet wide and footway 5 1-2 feet wide. Cost, $500,000.

12. Coalbrookdale Bridge, over the Severn, has the reputation of being the first cast-iron bridge built in England. It was erected in 1779. It consists of one arch 100 feet wide. Total weight 378 1-2 tons.

The Tower Bridge over the Thames — not yet completed — will be a notable bridge. Its centre arch is on what is known as the "bascule" principle, to be opened by raising two leaves, so as to allow ships to pass, and having, when opened, a footbridge above, available for foot passengers, 135 feet above high water. The following will, if carried out, take rank among the notable bridges of the world, namely:

A bridge across the Danube, 20 miles in length, to be constructed by the Roumanian Government, between Dudesci and Tchernavoda.

A bridge across the Hudson River, between New York and the north New Jersey shore, with a span of 2,860 feet, and, therefore, far exceeding the very wide span of the Forth Bridge.

A bridge across the Straits of Messina, 2 1-2 miles in length, connecting Sicily and Italy.

A bridge across the Bosphorus, with a span of 2,550 feet, to unite European and Asiatic Turkey.

A bridge across the English Channel, about 24 or 25 miles in length.

All but the last, says the *Mechanical News*, from which we take this list, are likely to be carried out within the next ten years. We very much doubt, however, whether the Channel Bridge will ever be constructed.

THE KARLSBRUCKE AT PRAGUE. — A short time ago the morning papers stated that the famous Karlsbrücke, or Charles Bridge, across the Moldau at Prague was doomed to destruction by the great floods which have been creating such havoc in Central Europe. The paragraph was a brief one and probably attracted little attention, but no one who knew the pride with which, for hundreds of years, the Bohemians have regarded this bridge could read the few lines without a thrill of sympathy. To write a history of the Karlsbrücke would be to write the history of Prague during the past five centuries. This indeed were well worth the doing, for though the old world is rich in historic cities, few are more interesting than this wonderful old town with its stately buildings, its quaint old houses and beautiful gardens, and its memories of illustrious men and women — of Huss and Wallenstien, of Maria Theresa and her implacable enemy, Frederick the Great. How many times these and others scarcely less famous have passed to and fro over the Karlsbrücke. Prague was the favorite city of that splendid monarch, Charles IV, the "stepfather of the empire, but the father of Bohemia." He established her celebrated university and beautified the town in many ways, besides laying the foundation of the Karlsbrücke in 1357. For 150 years the work went on, and when finally completed in 1507, it was justly regarded as a triumph of the engineering skill of the age. Even to-day few bridges are worthy of more admiration than the old Karlsbrücke with its grand old Gothic tower and its sixteen noble arches spanning the beautiful Moldau. As time went on statues and groups of figures were placed on the buttresses of the bridge. But the days of the Karlsbrücke are numbered. During September three of its arches were carried away by the swollen river, and the collapse of a fourth a little more than a week ago renders its destruction inevitable. Begun as the night of the Middle Ages was beginning to roll away, and finished in the dawning light of the Reformation, the old bridge falls just as the twentieth century opens before the world. — *New York Times*, May 8.

FULGURITES. — "Did you ever see the diameter of a lightning-flash measured?" asked a geologist. "Well, here is the case which once enclosed a flash of lightning, fitting it exactly, so that you can see just how big it was. This is called a 'fulgurite,' or 'lightning-hole,' and the material it is made of is glass. I will tell you how it was manufactured, though it took only a fraction of a second to turn it out. When a bolt of lightning strikes a bed of sand it plunges downward into the sand for a distance less or greater, transforming simultaneously into glass the silica in the material through which it passes. Thus, by its great heat, it forms at once a glass tube of precisely its own size. Now and then such a tube, known as a 'fulgurite,' is found and dug up. Fulgurites have been followed into the sand by excavation for nearly 30 feet. They vary in interior diameter from the size of a quill to 3 inches or more, according to the 'bore' of the flash. But fulgurites are not alone produced in sand; they are found also in solid rock, though very naturally of slight depth, and frequently existing merely as a thin glassy coating on the surface. Such fulgurites occur in astonishing abundance on the summit of Little Ararat in Armenia. The rock is soft and so porous that blocks a foot long can be obtained, perforated in all directions by little tubes filled with bottle-green glass formed from the fused rock. There is a small specimen in the National Museum which has the appearance of having been bored by the toredo, the holes made by the worm subsequently filled with glass. Some wonderful fulgurites were found by Humboldt, on the high Nevada de Toluca,

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in Mexico. Masses of the rock were covered with a thin layer of green glass. Its peculiar shimmer in the sun led Humboldt to ascend the precipitous peak at the risk of his life." — *Washington Star.*

A Corsican Grotto Sixty Miles Long. — A grotto has been discovered in Ajaccio, Corsica, which is said to exceed any ever known for magnificence and size. The site is a little over a mile from the Ponte-Seccia railway station. The grotto is entered with difficulty owing to the smallness of the aperture; but upon his entrance the explorer finds himself in a vast and lofty hall, the sides of which are some twenty-five yards in height. From this there are several passages leading to an indefinite number of other chambers. A thorough investigation of the grotto has not yet been made. Tourists have attempted to explore its depths, but after six or eight hours' search have returned to the open air with their task uncompleted, but full of marvellous descriptions of the fairy-like beauty of the grotto. On one occasion a workman undertook to penetrate throughout the whole extent of the grotto. He was supplied with provisions and torches of resinous wood. He was five days inside, and during that time he estimates he walked a distance of forty miles; and he was compelled to retrace his steps only by encountering a sheet of water which precluded his further advance. He never succeeded in reaching the farthest extremity of the grotto, and he supposed that there was another outlet upon the sea, not far from Cape Revelleta and Calvi. In the latter place there is a well-known cave of great depth and yet unexplored. It is on a level almost with the sea, and is known as the Grotte du Mugissement. In times of tempestuous weather the rush of the waves is tremendous, and the thunderous sounds produced by them, augmented by the echoes of the mysterious cavern, are audible at a great distance. At such times sounds are heard at the Ponte-Seccia, and there are apertures suggesting the play of the sea upon the rocks. These sounds are well known to the shepherds on the slopes, and are looked upon as the sure precursor of a storm. What adds to the belief that the Ponte-Seccia cave and that at Calvi are one, and that the whole comprises a vast subterranean passage sixty miles in length, is the story told by a goatherd that having totally lost sight of his flock for several days, he was astonished one morning to hear that they had been seen at a spot near Calvi. Two Professors attached to the Faculty of Sciences of Christiania have inspected the cavern of Ponte-Seccia, and their explanation of the existence of the cave is as follows: Corsica owes its existence to an Alpine upheaval, followed later by an upheaval of the Appenines. The river Golo first flowed into the Gulf of Calvi, but the second upheaval turned its course in another direction. The cave, then, is what was once the bed of the Golo, and owes its subterranean formation to succeeding geological revolutions. This theory is borne out by the floor of the cavern, which presents the appearance of having once been the bed of a stream. At places its width is as much as twenty feet; elsewhere it is barely sufficient to give passage to a man. An expedition will be organized at Ajaccio this summer for the purpose of solving the mystery of the cavern. — *Exchange.*

A Chimney-stack 460 feet high. — The *Zeitschrift* of the Society of German Engineers contains a description of a high chimney recently erected at the Halsbrückner Hütte, near Freiberg, Saxony. It serves at present for carrying off the obnoxious gases of the calcining furnaces and the blast furnaces, but a connection is to be made also with the reverberatory furnaces of the works. As the Halsbrücken works are situated in the deep valley of the Mulde, the top of the old chimney-stack does not reach to the summits of the surrounding heights. Consequently, at times the smoke from the furnaces lay like a blanket over the neighboring fields. To remedy this state of things the present chimney-stack was designed and erected, its top reaching 138 feet above the highest summit near. At its base the chimney has a diameter of 33 feet, at its top 16 feet, its inner diameter being 8 feet. It is built throughout of massive claystone with a facing of markstone at its base. For ascending the stack during building and afterwards, climbing irons of rod-iron 1 inch thick have been inserted outside and inside. They enter the masonry to a depth of 9 3-4 inches, and are, besides, provided with grapple hooks. To carry the gases from the old chimney to the new it was necessary to construct a flue to the new one, partly of wood covered inside with lead, partly of brickwork. This proved rather expensive, and brought the total cost of the chimney up to 6,500*l.* The Freiberg chimney is the highest in the world, the next highest being that at Messrs. Townsend's works, Port Dundas, Glasgow, which is 454 feet high. — *The Builder.*

Sir Richard Burton's Tomb. — The monument, which is sculptured in dark gray Forest of Dean stone and white Carrara marble, is very far advanced towards completion. It takes the form of the representation of an Arab tent, surrounded by a large gilt star of nine points. The flap-door of the tent supports an open book of white marble, on which is inscribed Sir Richard's name and the memorable dates of his career. Below it is the tablet bearing Justin Huntly McCarthy's beautiful epitaph. Underneath on a ribbon is inscribed "This monument is erected to his memory by his loving countrymen." The interior is paved with black and white marble, covering a base of concrete Portland cement. The coffin, which is of steel and gilt, will repose above ground on two marble trestles, at the foot of which is a marble altar: while a window of colored glass will throw light on the altar and tomb. The effect will be heightened by Oriental lamps and flowers. — *Pall Mall Gazette.*

The Government to Bore the Deepest Hole in the World. — One of the most important scientific explorations into the depths of the earth ever undertaken will be carried out near Wheeling, Pa., under the joint auspices of the United States Government and the City of Wheeling. Some months ago the Wheeling Development Company begun drilling a well near this city in search of oil or gas. It was determined to bore as far as possible. The hole has already reached the depth of 4,100 feet, within 500 feet of the deepest well in the world. In this distance a dozen of thick veins of coal have been passed, oil and gas both struck, but not in paying quantities, and gold quartz, iron, and many other minerals found. The hole is elght inches in diameter and the largest in diameter of any deep well in the world. Prof. White, State Geologist, has succeeded in getting the Government Geological Survey officers interested in the exploration, and the result is that the hole will be drilled to a depth of one mile. Then the Government will take up the work under the direction of two expert officers of the Geological Survey and drill into the earth as far as human skill can penetrate. The idea is to take the temperature and magnetic conditions as far as possible, and by means of an instrument constructed for the purpose, a complete record of the progress and all discoveries made will be kept and will be placed in the Geological Survey's exhibit at the World's Fair. — *Philadelphia Press.*

Why one Sheet of Plate-glass was Imported. — A great sheet of plate-glass that fell and went to flinders in Brooklyn the other day had a queer history. It was about twelve feet square and was worth $1,200. It could have been made in this country, but it could not have been carried to Brooklyn, because of the tunnels it would have to pass through. It was too big to travel on the canals. So it was made in the South of France. It met with trouble in its trip across Brooklyn Bridge, and had to be canted to one side to pass under the passenger platform. After all that, just as it reached its destination it was smashed. — *Philadelphia Telegraph.*

TRADE SURVEYS

It is not always an easy matter to sift all the reports, statements and figures presented from week to week from all sections of the country regarding business, and arrive at a common-sense conclusion. Much valuable information is systematically withheld; general and more favorable figures and facts are stated. If all sides and all points be watched, however, it will not be difficult to come within gunshot of the truth. Speaking generally, trade conditions are improving. The enormous outflow of gold, as it is sometimes spoken of, and which figures up some fifty million dollars this year, is not by any means the disastrous thing which most financial writers think it to be. It will prove to be an advantage, but this advantage will have to be demonstrated before the correctness of the statement will be admitted. One effect of the outflow will be to decrease dependence upon gold throughout the world — an apparently paradoxical statement — and to stimulate the demand for silver, especially in silver-using countries. Another effect will be to increase the purchasing power of money. The advantage to the United States will be that it will purchase its imports at less cost, or rather, obtain a greater supply of imports for the same amount of money, as measured by gold. This equalization of gold will of necessity continue, but it is probable that heavy crop exportations during the coming summer and fall will turn the gold tide our way once more. The European preparations for a general war will effect gold movements for a year or two to come, or until that crisis is precipitated. The money markets are said to be easy; so far as the great interior is concerned, the supply of money is far less than apparent demands. The fact that there are nine million mortgages on farms and town properties in the United States, and that the rate of interest is from ten to twenty-four per cent throughout the far West, is a fact that needs but little comment. While such conditions exist it will be useless for Eastern money-lenders to assure Western borrowers that the supply of money is sufficient. Land-values are stationary. Speculation is confined within very narrow limits throughout the Western and Southern States; a vast amount of land is being purchased for investment, but moderate prices are being paid for it. The booming of towns is receiving timely check. There are now more town-booms in progress than can be carried on to successful termination. Investors have taken warning in time, and experts who are watching the tendency and developments say that investments are now being made with caution. At the same time, it must be kept in mind that a vast amount of money is going into land, especially into mineral and timber properties in the newer States. It must also be remembered that the promotion of industrial enterprises of all kinds is being followed out with great vigor, though there are fewer wild-cat enterprises now than last year. Heavy investments are still made by English capitalists. These investments, as well as those made by American capitalists, are in pursuance of the belief that a general and great expansion of lands is destined to be made in the United States within the next few years. Railway gross and net earnings for the first quarter of this year show an increase of from four to six per cent over last year. Clearing-house returns are also favorable, showing that the volume of business is once more pointing upward. On several systems of railways better freight-rates are being obtained than three months ago. Sharp competition exists between water and rail methods of transportation between Chicago and the East. There are fewer complaints of excessive freight charges now than for many months. The Interstate Commerce Commission has been rendering excellent services in its prompt and businesslike decisions, and transporters are beginning to learn about what is expected of them, and what they must do. The spirit of organization is still extending throughout the trades. Industrial associations are accomplishing good results in the regulation of production and in the maintenance of living prices. Competition is bitterly at work protecting consumers against unusual or excessive charges. The influences at work in trade are all in the right direction. The dangers which menaced public interests a year or two ago from trusts and giant corporations have grown much less, and do not annoy the little editors of the country as they used to. The iron trade is improving slightly, but still a good deal of capacity remains idle. The lumber business is not expanding as it did last year, but production has not been checked, and this fact leads to the expectation that there will be a break in prices later on, because of the accumulation of stocks in first hands. The hardware manufacturers of the East claim that their interests are being safely managed, and that a satisfactory distribution will be maintained all the year. Textile manufacturers are doing a good business. Hosiery and knit-goods manufacturers have been obliged to let a great many machines remain idle for some weeks. Stove manufacturers have immense stocks on hand. The manufacturers of agricultural implements look for a very heavy demand, because of the tendency among farmers to increase their area of cultivation. There is a steady expansion of the cotton area of the Southern States, and small industries continue to spring up under favorable conditions.

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THE Course in Architecture at Columbia College will next year undergo considerable changes. Hereafter, not only will all the elementary scientific studies, such as Mathematics, Physics and Chemistry, Geology and Mechanics, be included in the first three years of the course, but all those techical studies which are merely preparatory and disciplinary, such as Free-hand and Architectural Drawing, Modelling, Shades, Shadows and Perspective, Ancient, Mediæval and Modern Architectural History — and much of the work in Ornament and in the Theory of Architecture — will be included within the same period. At the same time Architectural Design will be introduced earlier than hitherto. Time for all this, which will virtually accomplish in three years what has hitherto taken four, is obtained by omitting from the Course some irrelevant studies. This will leave the fourth year free for strictly professional work. In this a student will be allowed to take an optional course, giving himself, if he chooses to do so, mainly to Construction, both scientific and practical, or mainly to work in History and Design of a more advanced character than has hitherto, in the multiplicity of other studies, been practicable. At the same time the Trustees have established post-graduate or University Courses in Architecture, so that a student who spends his fourth year mainly over problems in Design may come back and study Construction, or, if he has elected Construction before graduating, may return at any time and take a year of Design. This is an opportunity of which students in offices, who are disposed to take a year of serious study, but have not time nor means for serious study abroad, may be expected to avail themselves. Such men would hold somewhat the position of the *anciens* in a Paris *atelier*, a position equally advantageous to themselves, to their younger fellow-students and to the School. It will be seen that this virtually establishes a five-year course; studies in the fourth year being elective, and the fifth year being taken, if at all, whenever it may be most convenient to each student.

AS the time is short we desire to call attention to the fact that the new School of Architecture attached to the University of Pennsylvania announces that the first of its entrance examinations takes place June 15. A later opportunity will be offered to aspirants September 21.

WE have been asked to give currency to the statement that *Architectural News*, formerly published in San Francisco, has been compelled to abandon its struggle for a prosperous existence. It is with sincere regret that we make this announcement, as the few numbers issued exhibited a satisfactory capacity on the part of its conductors to discriminate between what it was worth while for such a journal to attempt to do and that which it would be well to let alone. Perhaps its career might have been longer if it had been its lot to be published in some other part of the country; but this is by no means sure, the journalistic nest is so full of hungry fledglings, each extending its yawning bill to the advertisers of building supplies, who are gradually learning they cannot afford to keep the whole nestful alive at their own cost.

ARCHÆOLOGY at Athens appears to be in a very flourishing condition just now, and an unusual number of important discoveries have already been made. The students of the American School have had the good fortune to discover what appears to be the tomb of Aristotle. During the winter, they have been excavating in and about the site of the town of Eretria, in the island of Eubœa, just off the Hellenic coast. Running from Eretria to the neighboring city of Chalcis, they found the remains of a street of tombs, such as is attached to many Greek towns, and, among the tombs, they discovered the foundation of one of remarkably fine workmanship, which had apparently belonged to some distinguished person. Near this foundation was a later tomb, made of materials taken from the ancient ones, which contained a stone inscribed with the name of Aristotle. About the place they dug up a skull, with a gold circlet near it, two silver styli, or points, for writing on the wax-covered tablets which usually served the ancients instead of paper, as well as a real pen, probably for use on the papyrus sheets imported, for special occasions, from Egypt. There were also several other gold circlets, and a terra-cotta statuette, representing a man with the dress and air of a philosopher, with the hands folded. A Greek author describes a statue of Aristotle in this attitude, and as Aristotle is known to have died at Chalcis, it is quite likely that he would have been buried in this street of tombs, and, in that case, the finding of the stone inscribed with his name certainly seems to indicate that his tomb was not far off.

ANOTHER curious investigation has been going on in Athens itself. One could suppose that the Parthenon had been so thoroughly examined that there would be nothing left to discover; but Dr. Bruno Sauer conceived the idea that some of the doubtful points in regard to the pediment groups might be elucidated by a careful inspection of the bare pediments. With the help of a staging, furnished by the German Archæological Institute, he mapped with the utmost care the holes and marks in the blank marble, and soon deduced from them some valuable and important conclusions as to the statues which once stood in front of it. All the statues were secured to the background with iron or copper bars, and the forcing out of the bars has left the holes in which they were once inserted in plain view. From these it appears beyond doubt that the eastern pediment, instead of having a central sitting figure of Zeus, had no central figure at all; but that the middle portion was occupied by two statues, of nearly equal size, presumably those of Zeus and Athena. At each side of the eastern pediment is known to have been a figure of a horse. At one side, two horses drew a chariot, but, to balance this on the other side, it has been supposed that there was a figure of an equestrian, riding a single horse. Doctor Sauer's inspection shows, however, that the attachment for the head of the supposed equestrian figure was too far away from that of the horse, or horses, to admit of any other conclusion than that it was, like its pendant, driving, instead of riding; and, to confirm this, the remains of two horses' heads were found actually in place, in the position which they would occupy if shown harnessed to the chariot.

BESIDES defining more exactly the positions of the pediment figures, these observations show that they were more symmetrically, not to say stiffly, arranged than had been supposed, and our ideas of the Phidian freedom in grouping will have to be somewhat revised. The success which the English,

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German, French and American Schools are having in antiquarian investigations, and the renown which a healthy rivalry secures to any special good fortune, has induced the Spaniards to claim a share in the business, and a Spanish School of Archæology is soon to be established at Athens. There is something new in the idea of Spanish participation in classical inquiry, especially as the Spaniards have not done very much to elucidate the early history of their own interesting country; but the common foreign opinion will see quite as much propriety in a Spanish School of Archæology as in one managed by Americans, who are firmly believed, by a great number of Europeans, to dress, when at home, in a costume composed of eagle's feathers and scalps, and to spend their leisure moments in hunting buffaloes through the streets of New York.

A RATHER questionable story is in circulation, to the effect that a plan has been prepared for buying the Roman Colosseum, and transporting it, in pieces, to Chicago, there to be set up, stone by stone, as one of the attractions of the World's Fair. According to the newspapers, a "syndicate" has been formed, under the laws of New Jersey, which is to be called the "Chicago Roman Colosseum Company," and is to negotiate with the present Finance Ministers of Italy, who, finding difficulty in "making both ends meet" in their administration of their office, "are not in a position entirely to ignore a fair offer"; and, on securing the prize, which, we are told, as "Chicago is the Colosseum City of the West," "belongs of right" to a town which claims "all that is good or great of other cities and countries older than she, but which are not for an accident of birth, greater or better," is to proceed to set it up in Jackson Park. As an appropriate introduction to the Colosseum, it is proposed to purchase and erect "a section of the Appian Way," which will lead to the great building, and will serve to accommodate the persons who are to collect the "small fee" to be charged visitors. As the negotiations with the impecunious Finance Ministers of Italy, are, apparently, not yet begun, we will suggest that although Chicago, as the Colosseum City, might, on abstract grounds, prefer the Colosseum, the people who will go to the exhibition would be likely, in practice, to find a building with a roof on it more interesting, and that St. Peter's Church would be about as easily transported and reërected as the Colosseum, and would draw much larger crowds. Whether the Finance Ministers would part with this structure as readily as with the Colosseum is uncertain, and the Pope would probably claim a lien upon it, which would have to be satisfied; but, to the businesslike Chicago intellect, the process of "freezing out" the owner of property that one has taken a fancy to presents few difficulties; while, as to the Pope, it seems quite probable that if an opportunity of transportation, with his church, to "the Colosseum City of the West," should be offered him, he would seize it with joy, as an equivalent for his sacrifice. This arrangement would, we are sure, prove more attractive even than the combination of the Colosseum and the Appian Way, and a higher admission fee might be charged; for, while anybody can see large buildings in Chicago without paying, and there might be comparisons between the Colosseum and the Auditorium, to the detriment of the former, there is, at present, no object in Chicago with which the Pope, sitting in state upon his throne under the dome of St. Peter's, could be compared, and it is possible that the glory of the "Colosseum City of the West" would not, to devout spectators, entirely eclipse the lustre of the triple crown of Heaven, Earth and Hell, on the head of her reverend visitor.

M. DELAHAYE, in the *Revue Industrielle*, makes some sarcastic remarks about the new style of bullets for military purposes, which, according to a German surgeon, are to be welcomed with delight as the most humane bullets yet employed in war. The new projectile, which is made to be fired from a rifle of small calibre, is long, so that "its weight of section," as the military engineers say, is large, while its actual weight may be smaller than that of bullets of the old shape. By combining great weight of section with small diameter, the projectile is made to move with great velocity, and has immense penetrating force, easily going through two or three men at a distance of a mile. M. Delahaye finds the process of being drilled through by a bullet shaped like a lead pencil not much more humane than that of being shattered by an old-fashioned "slug;" but the German doctor thinks that the new projectiles will not remain in the wound, but will make a straight perforation through the body, simplifying the surgical treatment greatly. There is no doubt that the camp undertaker will, in future, have more to do after a battle, and the surgeon less, than under the old regime, but, as a soldier dreads long suffering from a wound as much as death, the balance of "humanity" may be on the right side. As lead bullets of the modern shape would be likely to bend, they are cased with steel or nickel tubes, which give them the property of penetrating the hardest bone without deviating from their course.

WE are glad to see that something has been done at last to suppress the ridiculous and disgraceful habit which small newspaper reporters, and some still smaller physicians, have fallen into of late years, of attributing deaths from all sorts of causes to "heart failure." We need not go out of our own profession to observe how a cant expression like "Queen Anne," or "Colonial," grows over popular ignorance like dry-rot fungus on a decayed log; but no one suffers seriously in anything but temper from seeing the advancement of real art sacrificed to these idiotic catchwords, while the meaningless medical phrase may be, and often is, used to conceal, not merely the ignorance of those who use it, but more serious things, which it is of great importance to know. Every intelligent schoolboy, as may readily be inferred from the uncomplimentary remarks upon the medical profession which are to be heard in public places after the announcement of the death of a distinguished person from "heart failure," knows that the heart does not "fail" except at the termination of some mortal disease, and that to attribute to such a cause the extinction of a life is as scientific and satisfactory as it would be to quote the old joke, that the patient died "from want of breath." It is easy to see that if this way of accounting for a death satisfies the public, it can be used to conceal the occurrence of fatal cases of diphtheria, small-pox, cholera or other contagious diseases, all of which terminate in "heart failure," and there is reason to believe that it is so used by unscrupulous medical men, to the danger of the public, which is in the highest degree interested in the immediate discovery of cases of contagious maladies. In Illinois, where the public health is guarded by Dr. Rauch, one of the most intelligent and energetic of sanitary officials, an order has been issued to registrars and town-clerks not to accept any more certificates of death from "heart failure," but to require definite particulars of the disease by which the failure was produced; and it would be very much to the public advantage to have similar action taken in other States.

THE Russians have shown their advance in civilization by copying one of the devices that has long been in use by the bishop of one of the large dioceses in the Western States and, we believe, by certain missionaries — a travelling railway church. It seems to be thought desirable in Russia that the laborers on the great railways now in process of construction should enjoy regular religious services, and, for a time, temporary churches were erected for them in the places which they successively occupied with their camps. The erection of one of these small buildings every few weeks was inconvenient and expensive, and it was decided, as a better solution of the problem, to build a car, which, while capable of being attached to any train, and transported to the place where it might be wanted, should, as to the inside, form a perfectly appointed church. Such a car was completed and consecrated last autumn, and is now in service on the Trans-Caucasian Railway. On the outside it presents the appearance of an ordinary car, except that the panels are ornamented with double crosses, while a gilded cross is placed over the chancel end, and a belfry, with three bells, surmounts the other extremity. The only entrance is, naturally, at the belfry end. This leads into a room decorated in white, with a blue ceiling, sprinkled with golden stars. A chancel, ten feet long, is divided from the auditorium by the usual railing. As usual in Russian churches, the altar stands near the chancel-rail, and the iconostasis, or sanctuary, behind the altar, is finished with oak, richly carved, enclosing panels, on which are depicted the saints, on gold backgrounds.

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SPANISH ARCHITECTURE.[1]—II.

ROMANESQUE PERIOD.

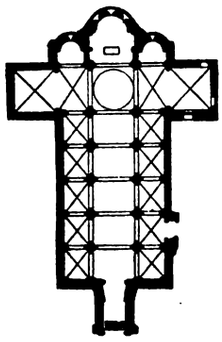

Fig. 5. Old Cathedral of Barcelona.

THE earliest distinctly Romanesque monuments in Spain, are for the most part of a heavy, squat appearance; especially is this true of those at Leon [San Isidoro, eleventh century]. In general, the plans of the churches are similar to those of the Romanesque structures of Southern France (Figure 5); it is, however, a noticeable fact that the decoration and architecture are either in the vein of the Romanesque of Auvergne (Figure 6) or they display the wealth and abundance exhibited in Burgundian Romanesque works, or even in the beautiful north and south doors of the Cathedral of Bourges (Figure 7). This sumptuousness is sometimes carried to a great extreme; the portal of San Vincente at Avila may be cited among the noblest examples of the Spanish Romanesque. The character of the interior (Figure 8) is grand also, and the sturdy, solid ordering of the nave cannot but remind one of the Romanesque churches of Burgundy. The vaulting, which was rebuilt at the end of the twelfth century, is wholly ogival, so far as the constructive system is concerned. However, though French Romanesque forms are frequently employed in Spain, as in the examples just cited, a marked originality appears in the solutions adopted in certain cases: though the Tower of the Cock at Salamanca is conceived in the French style of the twelfth century, the solutions employed for the central spires are without precedent; as, for instance, in the Cathedral of Toro, province of Zamora, which has a sixteen-sided central tower, cantoned with four small turrets.

The fashion of thus marking the centre of the structure by a lofty spire is one of the earliest indications of the peculiarly Spanish disposition by which the altar is stationed at the true centre of the church, that is, at the intersection of the axis of the nave with the axis of the transept, or even in front of that point. In this way the choir is much elongated, and it is lengthened still more by the rows of stalls which precede the altar. These stalls (*silleria*) form, as it were, a prelude to the choir, which occupies the enclosed space about the altar; the choir is further prolonged by an additional portion, or *trascoro*, which is often closed-in also, either by decorated walls or by grilles, so that the service is really conducted in an inner church, and so that the altar is nearly, if not quite, hid from the lay worshippers. This unique disposition of the Spanish church, which was very frequently adopted in the Middle Ages and the Renaissance, has called out ingenious and sumptuous compositions of great beauty; but, it seems to us to possess the great defect of detracting from the grandeur of the whole interior by creating a church within the church itself.

Fig. 6. San Nicolas, at Segovia.

Fig. 7. Door of St. Julian, at Salamanca.

At Santander, the antique cloister of the Collegiate Church exhibits some curious capitals, with rounded interlaced decorative patterns: in style, the edifice approaches very nearly the Romanesque churches of Béarn.

Among the most remarkable structures of the Romanesque period must be cited, the churches of Tarragona (Romanesque apse) and Barcelona, the cathedrals of Lerida and Solsona, San Domingo at Gerona, San Pedro at Olite, San Cucufate del Vallés, Santa Magdalena at Zamora, which is almost a copy of the church at Tarragona; San Domingo of

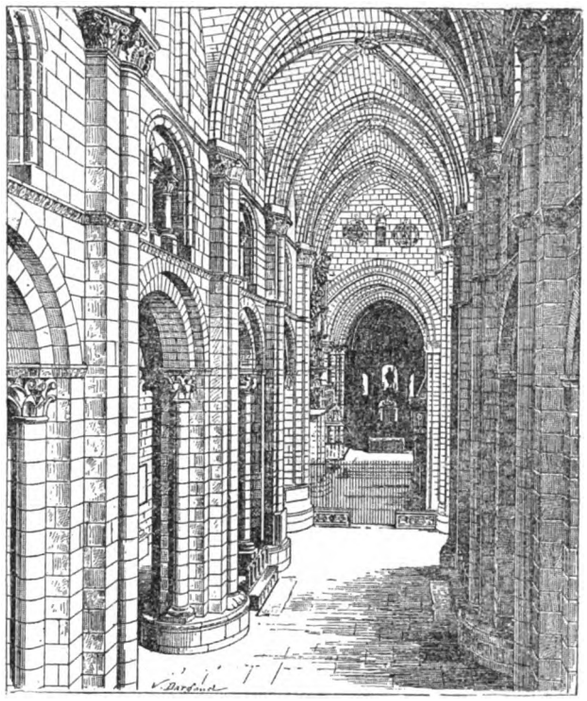

Fig. 8. Interior of San Vincente, at Avila.

Silos, similar to the Romanesque churches of Provence; and the collegiate church of San Isidoro (Leon), with its Romanesque paintings, its archivolts adorned with representations of the months and of the prophets, and its vaults on which grand themes are unfolded, as for example, the "Last Supper." In tone, these paintings are exactly like the paintings in Saint Salvin, near Poitiers. At Oviedo, the churches of Santa Clara, San Juan and Nuestra Señora de la Vega are in a style which reveals at once the elements of the Romanesque of Berry and Auvergne. The church of Santa Maria de Val de Dios is Romanesque although it dates from 1218 [Galterio, architect]; its plan, except for the anterior porch, is quite similar to that of the Cathedral of Autun, with its slightly developed transept and its three parallel and juxtaposited apsidal chapels; a tradition of the preceding period is also to be observed here in the

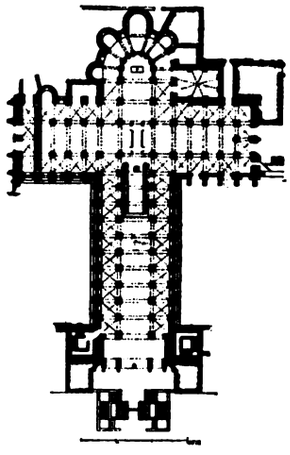

Fig. 9. Santiago de Compostella.

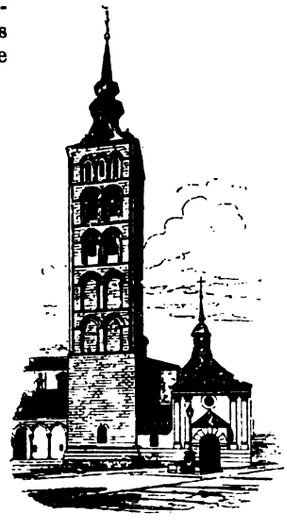

Fig. 10. Tower of San Esteban, at Segovia.

queer windows of open stonework. In the Cathedral of Valencia, there is a Romanesque door of a remarkably energetic style, the door of Lerida. Lastly, at Santa Maria de Villamayor (*Concejo de l'infiesto*), we note a mixture of the styles of

[1] From the French of H. Saladin, in Planat's "*Encyclopédie de l'Architecture et de la Construction.*" Continued from page 129, No. 805.

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Burgundy and Auvergne in the architectural elements and in the decoration, while the oblong plan, the system of barrel-vaults and the choir, which forms a sort of chapel with a rectangular sanctuary and terminates in a semicircular apse, carry us back to the latter part of the preceding period. The same is true of the parish church of Ujo.

Santiago de Compostella (Figure 9) is a Romanesque church exhibiting, with its *coro* and *trascoro*, a disposition quite peculiar to Spain. The apse resembles the apses of the churches of Poitou and Auvergne, with their small semicircular chapels; but the arrangement of the transept is wholly unique. This portion of the edifice is exceptionally important here; it constitutes, properly speaking, two secondary churches on the right and left of the axis of the nave, perpendicular to the great church and possessing, like it, a nave and two side-aisles.

The monuments of Segovia have a character of their own; they are more soaring in appearance than the other edifices of the same period, and in such churches as San Millan and San Estaban there is a lateral portico on either side of the nave for the shelter or accommodation of worshippers. The tower of San Estaban (Figure 10) has an airiness about it which in France is displayed only in edifices of the transitional period in Ile-de-France — this spire was reconstructed in the sixteenth century.

The plan of San Millan includes a nave and side-aisles, each of which terminates in a semicircular apse; rectangular porches form the transept, and these projections on the lateral façades correspond to the porticos spoken of above. The apses alone are vaulted; the aisles are covered with exposed timber work, the decorative elements of which are of a very pronounced Arabic type. It must be observed that the principles of Arabic decoration often found their way into the works of the Romanesque era in Spain and especially in the productions of the goldsmith's art, as was the case with so many religious structures of the same period in Southern Italy and even in France [abaci in the cloister of Moissac, door of the church of La Voulte-Chilhac, wooden doors of the Cathedral of Le Puy]. In this rapid glance at the Spanish monuments of the Romanesque style we have noted the existence of a clearly defined French influence. This influence will be seen strengthening during the thirteenth and fourteenth centuries, mingling with the influence of Flemish and Rhenish artists in the fifteenth century, and disappearing at the beginning of the sixteenth, before the preponderant influence of Italy.

[To be continued.]

THE RENAISSANCE IN PORTUGAL.

Royal Palace at Cintra.

In the following lines it is proposed to treat of the effects produced by the terrible catastrophe at Lisbon. The brilliant capital has even yet hardly recovered from the blow it received on the eventful morning of All Saints' Day, in 1755. Here and there, between the repaired and rebuilt houses and the many churches and palaces which have since been erected, are to be seen striking evidences of the destruction wrought on that eventful day, in particular decayed churches, ruins without roof or vault, with gaping empty windows, walls black with age, and overgrown with broom; partially destroyed cupolas, spires, towers and façades. With the exception of the remains of the cloister of Madre de Deus, in the suburb of Xabregas, and in the transept façade of the church, S. Maria da Conceição velha, both of which are to be ascribed to the Emmanuel style, the formation of the most of them counts from that time just before the sinking and fall of the country. Portuguese architects — who were, to be sure, of the Italian school — have developed a particular type and this with a severity and completeness of character as to a harmony of exterior and interior effect, which is combined with such decorative art as seems to have been developed only in this land. In their majestic and imposing ruins these magnificent works merit, with every right, the name of Portuguese Renaissance.

But a no less sad remembrance than that of the sacrifice of the 30,000 unfortunate beings, a large proportion of whom found an early grave in the collapsing of their noble temples where they had sought shelter, is that of the number of persons of royal blood who lie buried in one of the most beautiful mausoleums belonging to the Portuguese royal families. For valuable information concerning these mausoleums, of which each single one shows to a certain extent the highest development in the history of the country, we can refer to an admirable work but recently published, by the architect Albrecht Haupt.[1]

The House of Burgundy became extinct with the decease of Fernando the Polite. He was formerly a vassal of the Castilian kings, he tore the land away from the Moors, in the battle of Ourique won for himself the title of king, conquered Santarem, Lisbon and Algarbien, constituted the orders of Aviz, St. Michael and Christ, founded the University of Coimbra, and by wise legislation laid the foundation of the subsequent high standing which Portugal held amongst European nations. Immense castles and well fortified towns are striking evidences of the industry and efficient ruling of the House of Burgundy. Their cathedrals are unassuming and small, their palaces poor but proud, built in a simple half French half Spanish Gothic, with heavy pillars and arches, and with battlements, the whole severe and almost gloomy, the true monumental embodiment of that most distressing and warlike time in which they were founded. In this same style is the family tomb of the House of Burgundy in the church of the large cloister of Alcobaça, the same cloister in which according to the "*Weisskunig*," the ambassadors of Frederick III, when on their expedition for Eleanore of Portugal rested for the last time, before she was conducted in solemn procession to Lisbon. The crypt of the church contains the bones of nearly all of those related to the old family of the House of Burgundy. With these princes was buried the unfortunate Inez de Castro, the wife of the first and mother of the last king, and whose fate and fortune so many poets have honored and dramatically represented, and who has received from the pen of Luis de Camoens an inestimable literary tribute, written in the noble, sounding language of the country.

With John I, the House of Aviz ascended the Portuguese throne, a powerful, high-minded, far-seeing race. The epoch in the history of Portugal which now began has been written about by mankind with golden letters in their annals. He changed the gravitating point of the hemisphere from the Mediterranean to the shores of the Atlantic Ocean, made Portugal the first sea power and Lisbon the animated commercial centre of Europe. It is the glorious epoch of Henry the Sailor, John II, and Emmanuel the Great; Bartholomäus Diaz, Vasco da Gama and Cabral; the time in which a Boutaca and a Castilho built, the poet Gil Vicente lived and of which Luis de Camoens has sung in his immortal "*Lusiade.*" The battle of Aljubarrota (1385) shattered all claims of the Castilians. The Cloister Nossa Senhora da Victoria, commonly called Batalha, lying between hills, covered with vineyards and firs, stands as a monument of this great engagement. It covers the remains of the princes of the House of Aviz until Emmanuel the Great's time, who with his successors were buried at Belem. The builders of Batalha were English architects, who came to the country with Filippa of Lancaster, the spouse of John I. The castle of Cintra erected on one of the finest spots in Europe, presumably already commenced by the Moorish invaders, but built by John I, Alfonso V and John II by the aid of Moorish talent, enlarged by Emmanuel the Great who was born there and who grouped the buildings in such an apparently methodless manner that the castle partakes the character of an alcazar rather than a Christian dwelling, shows us what effect Arabian art was able to accomplish in the Christian era, in a style which in the fifteenth and sixteenth century was produced in Portugal and which we call "mozarabic" and in Spain "mudejar." The architecture of this Portuguese Alhambra, whose immense conical fireplaces are yet to be seen in various cloister kitchens — there is one in use in Alcobaça and it may be mentioned incidentally that these were of Moorish device — could easily assimilate itself with the late Gothic motives without losing its specific character — with its smooth walls, battlements, narrow pillars, pinnacles and arches. With regard to the treatment of details, the Gothic has had some influence. The material used on the buildings round about Lisbon, for instance on the Batalha, is a snow-white limestone, so soft that it can be readily cut with a knife; on the Spanish frontier from Estremoz to Beja white marble; in the north granite, and in correspondence with the material so is the form, the one refined and delicate and the latter massive, heavy, ungainly and rough. The Arabians taught the Portuguese the noble art of stone masonry, as is noticeable in the bake-ovens which were erected in the Province of Beira alta, and especially in the neighborhood of Evora, until the sixteenth century, when they were finally driven from the country. In the most southerly province of the country, in Algarbien, where even the

[1] "*Die Baukunst der Renaissance in Portugal*" from the time of Emmanuel the Great until the end of the Spanish dominion. Vol. 1, Lisbon and its Suburbs. By Albrecht Haupt, architect, private tutor at the royal high school of Technology at Hanover. Published at Frankfurt-a-main, by Heinrich Keller, 1890.

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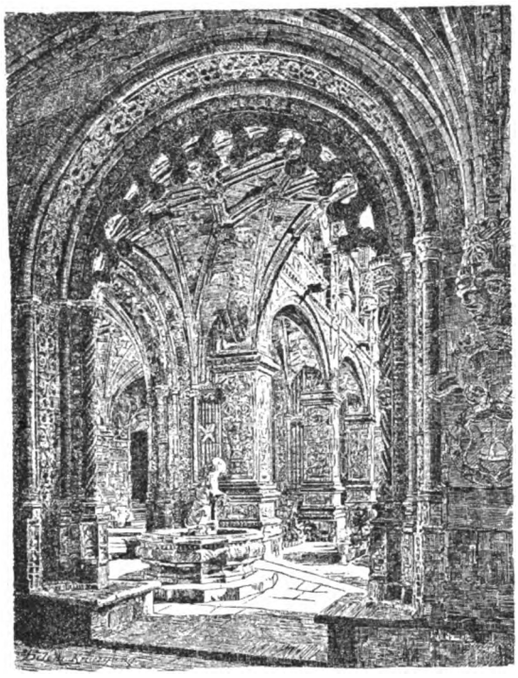
simplest lime and sand stone are not found in such ample quantities. There is yet standing and in use an old Arabian mortar-mill, where tiles are made which are used all over the country, these tiles being called "azulejos," because of their prevailing blue color. Whilst



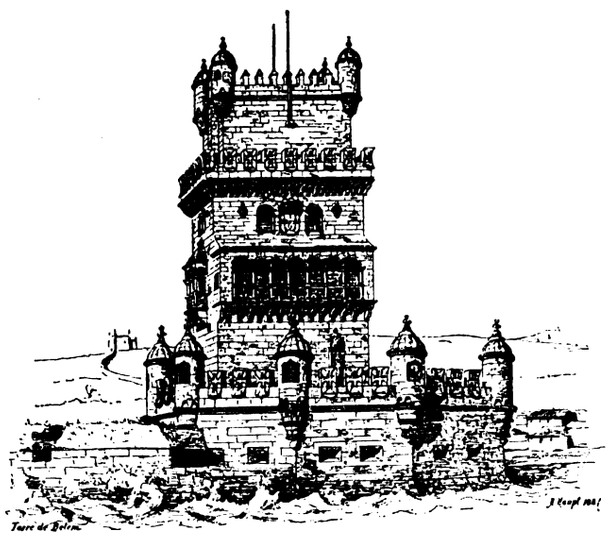
An Angle of the Cloister at Belem.

this means of decoration became extinct in Spain, where it is known the Alhambra, the Alcazar and the House of Pilatus, at Seville, are so ornamented, the Portuguese proceeded with it and in the seventeenth and eighteenth centuries especially the art was highly developed. In place of the intricate Arabian line-work, Renaissance ornament appeared in the richest colors finally, comprising paintings of historical, allegorical, religious and every-day life scenes, which spread themselves in most lavish abundance not only over the domes, corridors, stairways and walls of the halls and chambers, but also through the court-yards, towers, house and church façades. The azulejos which decorated the star-shaped basin in the court of the transept at Belem and whose influence in this place must have been a very unique one are destroyed, but there still are some to be found on the altars in the Capella dos Jeronymos itself. Besides these just mentioned, there are yet worthy of notice the bas-relief ornaments on that most curious circular building on the ramparts, the Church of São Amaro at Alcantara (*ca* 1580) that one assigned to F. de Matos (1588) in the third right-hand side chapel in São Roque at Lisbon, and lastly those in the Grace Church at Santarem and in the Hospital Church at Braga. The first are the most comprehensive, the second the finest of that kind of work in the Renajssance period and both the last show the stupendous undertakings of a combination of styles of a later date.

And as the Portuguese have copied from others in that kind of decoration, so have they most notoriously in the pendentives of the arches and vaults with their many cornered and star-shaped patterns, and decorated trough-shaped wooden coverings, the same as are found in the whole of the Pyrenean peninsula, and in Portugal for instance in the castle church at Cintra, and in the Cathedral at Coimbra, until into the seventeenth century and of course further developed by substituting caissons in place of Moorish decoration. The best proof of this development is again in the castle at Cintra on the ceilings of the Sala dos Pegas, Sala dos Cysnes and Sala dos Escudos, which all originated about the period from John I to Emmanuel, perhaps later, but in any case in the original primitive style. Each ceiling bears its name according to the painted decoration of the caissons, the first after the magpie, which is a probable allusion to the condition of the court so far as the ladies of the court were concerned, the second after the swans with crowns about their necks, about which, so the story goes, John I used to flatter his wife, the third after the seventy-two coats-of-arms of the Portuguese nobles. The cylindrical vaults, also, of the church were carved in wood and then decorated with plaster, as in São Roque, Igreja dos Anjos and other buildings in Lisbon, by Fillippo Terzi and his followers.

The Moors excelled besides in certain handicrafts, such as leather work and ivory-turning and imparted much to the Portuguese, but there are many other things in which the Orient influenced the destiny of the country. The two Sanscrit writings in Penha verde are by no means the only Indian remains in Portugal. Here the famous fourth vice-king of India, Johann de Castro, found his resting place in the Church of Nossa Senhora da Monte, which lies far up on the wooded heights, above his richly ornamented summer residence filled with trophies and statuary. Whatever the Portuguese discoverers saw in the magnificent monumental world of India, they left all the wonderful ideas of the beauty and richness of the East far behind them. Was it any wonder, then, that each newly arisen building, in particular that of Thomar, the chief seat of the Knights and commanders of the order of Jesus Christ, should remind them of the glorious climate in which they had won their laurels; that in João de Castilho, who as the royal architect went with the king's fleet to those distant shores, should have awakened the burning wish to surpass as far as possible the overwhelming impression made on him by the works of those unknown masters, in his own buildings in Alcobaça and in Batalha, in Thomar and in Belem? In the famous window of the Chapter-hall at Thomar, in the mouldings and pilasters of the window at Belem and elsewhere the Indian sources are observable; also in the magnificence of the sculpture of the portals of the buildings just mentioned. The panel on the Pelourinho (Pillory — now a fountain) in the market-place at Cintra is without any doubt an imitation of an Indian work. One does not need to go very far to prove the truth of this allegation, for the original, a "contorted mass of bodies and ornaments" is to be found in the Castle of Cintra itself. An example of masonry, the Torre São Vincente, just as distinctive a type as the cloister for whose protection it served, rises opposite Belem on a rock in the middle of the Tagus, in all its magnificence. Proudly and in striking silhouette the terraces and corner-towers, the battlements, ornamented with the cross of the Order of Jesus Christ, stand out and point as it were to the sea and to the land of the heathen. It were idle, with these strong evidences, to question the architecture. Only a superficial comparison with one and that indeed a pronounced type of Indian temple, leaves no doubt of the fact of the impression produced by the Orient.

The Gothic first of all began to assimilate the Oriental influence and was probably brought from the Netherlands. It not only changed the pilasters, but gradually included also the columns and dome-ribs, as similarly happened in Spain. Peculiarly noticeable, however, in decorative objects is the late Gothic. In John II's reign, Andrea Contucci dal Monte San Sovino, abbreviated to Andrea Sansovino, was called to Lisbon. Though the influence of this master in the development of the Portuguese Renaissance and what Raczynski relates of an existing relief at Coimbra, quoting Vasari, which however is an error, must not be overrated, yet the period of his operations mark a turning-point in the art of the country. This turning-point is marked by that early Renaissance of fantastic character and must be looked upon as the most curious phase in the history of Portuguese art; unless one contemplates it as one of the most interesting art episodes of all times. Classical studies had long been in vogue in the country before John II summoned Andrea Sansovino and before Emmanuel the Great allowed young painters to travel to Rome for a broader education and had received, in return for his gift of the first Indian gold sent to Rome, the celebrated Bible of Belem, in seven volumes, the wonderful work of Florentine illuminators. The direction of the style has therefore its own development and has several groups of buildings to show for it. The Portuguese name them with perfect right after the king in whose reign they produced their greatest monuments, before Garret and Hercolaus, the Emmanueliana. It has been thought to trace this to the influence of certain Spanish buildings. A thorough investigation proves that it is just the reverse, that the method of building the court of the College San Gregorio, at Valladolid, as well as parts of



Tower of S. Vincente, Belem.

the Ducal Palace del Infantado at Guadalajarra, originated in Portugal. It is characteristic of the Emmanueliana that the composition remains late Gothic, but that the Renaissance ornament is related to the previously mentioned spiral parts, to the broken and interlacing arches, to the cinquefoil arch, the chancel arch, elliptical

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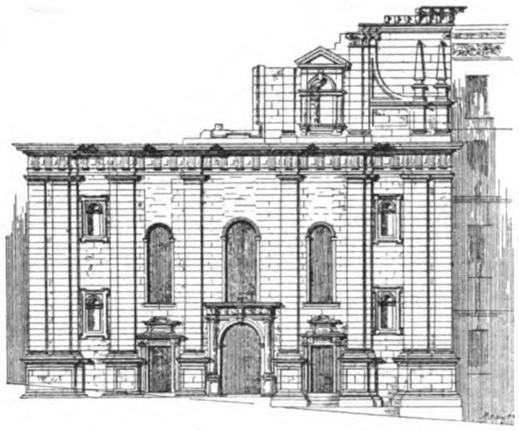
arch; to the one-half and three-fourths plain and decorated mouldings and to these wonderfully carved immense crockets and finials; but this tends only to increase the richness of the various forms and in the painted composition masses by its quiet and frequently artistically finished treatment. Vasari says "Andrea devoted himself to strange



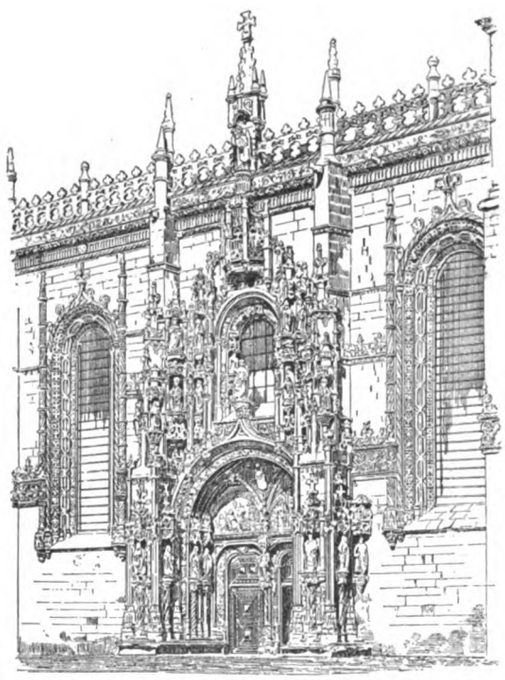
Facade of the Church of S. Antao, Hospital of S. Jose, Lisbon.

and difficult architectural matters after the custom of the country, in order to please the king."

A league below Lisbon in the place of the small S. Maria chapel erected by Henry the Sailor, the anchoring place of Rastello, and in which Vasco da Gama on the night before he sailed had uttered his last prayer and on his return his first, there rises "a view sweetly pleasing to the eye," that wonder of masonry — Belem, a fine proof of the abilities of that time, the gorgeous thanks-offering of the Portuguese people for the success of those deeds which had made Portugal the first of sea-faring nations. It was founded as such by Emmanuel the Great on April 21, 1500, and completed by John III, although never quite finished. Once it served as a cloister for the monks of the Order of St. Jerome, but now is a royal orphan asylum — *a casa pia*. Boutaca must have conceived the plans of the whole foundation before João de Castilho, whom we have already spoken of, designed and carried out the building. On the church which terminates in the east in the somewhat heavy Renaissance choir of Diego da Torralva there rears, in the north, the immense square transept, surrounded by the chapter-house, sacristy and refectorium, and in the west the huge dormitory building, 185 metres long, with an open hall on the ground floor over which at that time were the cells, sleeping and dwelling rooms of the monks. The immense portal on the south side, which is 32 metres high and 12 metres wide and which embraces the whole arch of the church, has nowhere its equal. The transept is, in the majesty of its proportions, in the richness of its decorations and in the unparalleled treatment of its double hall, the most perfect of that kind of building in the whole world. Its architecture is ascribed to João de Castilho and also the entrance, but on this latter the artist Nicolas, the Frenchman, claims also some portion. He was the leader of the French art colony at Coimbra, whose aims towards the end of the reign of Emmanuel showed a sympathy toward the styles of the Middle Ages and also the Indian. In the seventeenth century in Portugal we notice all walls and ceilings of the churches covered with richly carved and gilded woods. The effects attained by these panellings surpass everything of a like character in magnificence as is shown on the old church S. Francisco in Porto. The coffers in the sacristy whose rich and artistically modelled figure ornaments and above all the choir-stalls, form the introduction to Renaissance decoration. The choir-stalls at Belem are the first example of this wood-carving in Portugal. The master of these is most probably Diego da Carta or Carça, who also made the likewise remarkable choir-stall in the Cathedral of Evora, and those of Nossa Senhora do Carmo at Lisbon, once very celebrated but not now in existence. Flemish masters fostered the art of wood-carving, which developed itself at the same time as that of the Portuguese school of painters whose paintings, as Justi has demonstrated, show a reflected splendor of the best days of the people and continue the traditions of the Van Eycks in a truly national sense until late into the sixteenth century, while the mannerisms of the Italians have flooded the rest of the world. The church of the Cloister of Christ at Setubal, the earliest specimen of the new style (commencing in 1490) was built by Boutaca, who, as we have just seen, was the first architect of the cloister at Belem and the S. Maria Church. Both houses of worship are composed of nave and two aisles a form at that time not to be found in the country nor perhaps on the whole Iberian peninsula; to be sure, though, the church at Setubal in no manner approaches that of the Hieronymus Order in dimensions and boldness of conception. As in that, notwithstanding certain misconstructed parts, the happy effect of the good proportions is substantially enhanced by the twelve large paintings by the brush of some clever master in the early part of John III's reign, and others made in the seventeenth century, with their richly carved and gilded frames; so in the S. Maria Church at Belem is the whole affected in the same way; the roomy interior with its single *ensemble* of architecture and decoration, with its net-work dome and tapering decorated pillars. It is a most worthy Pantheon for the ashes of Vasco da Gama and Luis de Camoens, for Emmanuel the Great, John III, Cardinal Henry and Dom Sebastian.

At the death of Emmanuel the Great the lucky star of Portugal began to wane. The amount of gold drawn from the country by the colonies, and the number of its best people settling in distant latitudes both combined to upset the existing administration of the kingdom; the suppression of the industrious Moors and the zealous Jewish merchants depopulated the country, unexpected and fearful droughts and famines broke out and with greedy hands laid hold of Spain, France, Holland, England, and even included all those lands which the Portuguese people had acquired for themselves with the most strenuous exertions. To these misfortunes brought about by the short-sighted policy of John III other domestic troubles were added, enemies to be feared, the Inquisition and the Jesuits. On the battle-field of Alcacer el Quiver (1578) that over-learned scholar, Dom Sebastian, reaped the result of their unfortunate instructions and sealed, with the surrender of the army and his fall, the end of Portuguese greatness and glory. Only a few of the buildings erected in the reign of John III are to be traced to royal initiative. Through Filippo Terzi (Tercio, Terzio — at the Archduke Ferdinand's court there was likewise a Ferzio — Burgemask by birth, an efficient painter and copper-plate engraver) who came over from North Italy, perhaps from Verona, Portuguese architecture received a new impetus in this epoch, and by this is manifested already the power of the Jesuits in the country.

The high standard of excellence in his São Roque (1570) was the inducement which led King Sebastian (1557-76) to name him the architect to the royal palaces, and honor him with high favors. Cardinal Henry released him after the battle near Alcacer, in which he was captured in the retinue of the King and restored him as Architecto dos Paços Reaes. The general character of his buildings makes it easy for one to recognize in him a pupil of Sanmicchele and the Church of S. Georgio in Braida, Verona, as the pattern he somewhat followed in the beginning: most of these buildings were partially or totally destroyed during the earthquake. They are as we have said, of a grand character, and in real monumental effect and nobleness of form far surpass those buildings erected in the same period in Spain. Doric pilaster orders rule the exterior and the interior is a nave only, with rows of chapels on each side and above these the galleries. A dome, with or without a low drum, marks the intersection; large vaults — only São Roque is flat-roofed — divided by stone ribs in various caissons and fields cover the inside, and these are decorated in the manner previously mentioned, as well as by a kind of marble-mosaic — a costly embellishment — the best instances of which are in those churches so many times alluded to already — São Roque and São Antão. Balthasar and Alfonso Alvarez, as well as João Nunes Tinonco are the most renowned of the pupils of Filippo Terzi. There are standing yet of the buildings in Lisbon



South Doorway, Church of S. Maria, Belem.

by this master and his school: São Roque; São Antão and the Hospital of S. José and S. Maria do Desterro are in ruins since the earthquake. Yet there is another which is evidence of what houses of worship were like in those days — the Church of São Vincente da Fora, the dome only being destroyed. The whole air

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of the interiors, the imposing pilaster orders, and the restored black-and-white marble caissons rank these buildings as the most eminent in Portugal, perhaps in all Europe.

After the country had surrendered to Spain, Filippo Terzi still remained court architect. Unfortunately, his principal work in palace buildings — the one erected for Philip II, the Torreão do Paço da Ribeira — was carried away by the raging waters of the Tagus on the awful day in 1755. With the close of the Spanish rule the history of the Portuguese Renaissance ceases. The blooming time of Terzio's school was only of short duration, and the downfall rapid.

The monuments of Portugal have not escaped the restoring mania of our times. The Cloister Madre de Deus, besides having become an asylum for the insane, most unfortunately, is no longer to be trusted as to its early forms. The Torre São Vicente has suffered by the extensive renovations in the details of the hall and the balcony. In Belem, a great deal of "restoration" has been energetically carried on for about thirty years, or perhaps better said, additions have been extensively made, with good materials truly, but with so little foresight and prudence that the middle building of the dormitories has fallen in.

That which Herr Albrecht Haupt offers us in the shape of illustrations in general in his work, a second volume of which we are eagerly awaiting, is very successful. In many cases, though, one regrets that he took such rough and incomplete sketches, seemingly copying the ways of certain German illustration manufacturers, who are careless about the correctness of the details, for these sketches, although not without value, give only a general impression, and then only to those to whom the object is known either by inspection or by being the fortunate possessor of photographic prints, which serve as a mnemotechnic means of help. In other respects he has agreeably undeceived us. Taught by experience, and receiving an unpleasant foretaste by a certain wording of the preface, we feared an extremely dry and, therefore, dull book. We find, instead, matter well made up, a free style of writing, always suitable to the passage, occasionally an extraordinarily striking part, and, in places where the author describes what he has actually seen and lived, a vivid and enthusiastic portrayal. We were apprehensive of finding it one of those books which are hastened in the preparation in order to satisfy the demands of a speculative publisher, and which are, consequently, so often slighted; we find, instead, a profound study into the history of art. We expected a number of artist biographies gathered from every known and unknown encyclopædia, hastily put together, and, of course, with the inevitable "historical introduction" — a jumble of all the aid that "Schlosser" can afford, and in which every word reveals the utter want of real historical meaning; in place of all these pretentious absurdities, we read real learned sense, and meet, instead of a compiler, an historian. How he discovered the influences and impetus to which the Renaissance in Portugal owes its high standing, and traces it in such a strictly methodical manner, is demonstrated in his simple though very correct sentence: "The development of Portuguese architecture is only made intelligible in the hands of an historian" (page 31) — clear enough. Biographies exist in abundance in his work, but always in subordinate places, and never as an objectionable feature. He does not trace the development of art to the power exerted by men of natural genius by causing a revulsion in art circles, but to a series of political, religious, social and literary facts, which, in turn, influenced these same masters.

The high standing of Portugal among European nations in the fifteenth century is most amply demonstrated by the alliances of its princes with Burgundy and Hapsburg, the most powerful families in those times. A little later, and the illustrious scion of these two houses would have joined — to make one huge empire — Austria, Burgundy, Spain and Portugal, which would have crumbled away about as quickly as it could be formed, as did the Spanish Hapsburg branch, the representative of fallen glory. It was in Germany, during this same period, that Dürer produced his great "Passion," Burgkmair found his vocation, Peter Vischer became a great master; yet the building of the Cologne Cathedral came to a standstill, Schongauer was dead, whilst Schüchlin, Zeitblom, Holbein the elder and Wohlgemuth only endeavored to please the pious yet narrow-minded masses of the people. At the same time, Italy blossomed with the wonderful art productions of the High Renaissance, in Flanders the period in which the large court-houses were erected, and, after the Van Eycks, Rogier v. d. Weyden and Memling, there came the epoch of Quintin Matsys. In France, at the close of the Gothic style, they neared the end of that period over which King Francis exercised such influence; in Spain, the completion of the richly-decorated towers and domes of its cathedrals was carried on, and that style of beaten-silver panelling for ornamentations had just started, and in Portugal the Castle of Belem was founded. Maximilian I was, by blood, just as good a Portuguese as German. No wonder, then, that in the wood-carving which those two great masters produced for him the Portuguese reminiscences were not forgotten. In the triumphal procession of Burgkmair are pictured the Kalekut folk, the "wild men," who, according to the "Weisskunig," have their dwelling in one corner or angle of the world in "that distant island in the ocean, and who were subjects of the King of Portugal"; and also the Olifant is to be seen in this same carving, who, by the same authority, had drawn on himself the eyes of the multitude during the wedding festivities of Eleanor in Lisbon.

As a concluding evidence, we mention Dürer's triumphal arch, upon which shines the chain of that order which Philip the Good founded on the day in which he was married to the Portuguese king's daughter. As we have seen above, art excelled in Portugal, and, after 1500, spread itself over Spain; and, in a like manner, during the renowned monarchy of the Hapsburgs a new element was introduced in the European intellectual world by the pupils of Loyola, the expression of which is to be beheld in the architecture of Vignola as well as in Borromini's, in the paintings of Eklekteker just as much as in Caravaggio's, Rubens's and Murillo's; yet for a long time it is observable that Portugal followed its own peculiar style in the furtherance of art. As we note in the work of Albrecht Haupt, the effect of the Dürer period in Germany is to be traced to the banks of the Tagus. History of Art will have asked itself the question: How many of the characteristic features of German Renaissance has, perchance, had an influence on the architecture of Lusitania? — *Josef Dernjac in Zeitschrift für Bildende Kunst.*

A RUN THROUGH SPAIN.[1] — XII.

"THE ROAD TO SPAIN."

AS we tramped along preparatory to leaving Tangiers, the same old sheik who had made us pay a small fee to get into the town, halted us and demanded a coin before we left. As this was rather maddening I started to expostulate, when I saw a suggestive motion from Patecola, so, thinking that discretion was the better part of valor, I paid the old wretch a few pesatas, whereupon he allowed us to go on. So little system is there in regard to this old fellow's duties, that he simply gets all he can from every traveller, knowing full well that he has but one year's service to perform, and that he must therefore rake in all he can. Had we refused his rapacity he would undoubtedly have caused us no end of trouble, and delayed us indefinitely. But he was feeling particularly happy, for he had just gone through a poor Englishman's luggage, and made him pay for everything he had and then robbed him in a terrible manner because he carried a large green bath-tub on his shoulder. The man certainly did look very funny with the thing slung over his shoulder, and I can imagine that it caused him no end of trouble: such would-be clean people shouldn't travel in such dirty countries, for if one wishes to be happy he must do as the natives do.

Our run through Spain has already carried us across the sea and into another country. Like the impetus of a runner the exhilaration of travel was so strong that we could not stop, and had to go on. Now, having seen some of the beauties of such a strange land as Africa, we are returning to our first love, and strange enough, must pass through a bit of mother country to attain it. Our little boat is steaming across the sea, and already we get a glimpse of a far off peak of land that seems cut off from any main land, and stands alone. We are returning to Spain, and yet to an English town.

The Rock of Gibraltar stands at the extreme end of Spain, and across a flat band of sand which connects it with the mainland is an enormous board fence, a quarter of a mile long, possibly, and forty or fifty feet high. Not content with wresting from Spain her rightful property, England followed up her thievery by building this huge bit of carpentry, and painting upon it the sarcastic assertion that

"THIS IS THE ROAD TO SPAIN."

The effect of might gaining the victory over right was never better exemplified than by this board fence, and the simple sight of it gives the traveller a vivid picture of John Bull's grasping spirit, and makes the blood of a true Spaniard run swifter as he thinks of the outrage upon his weaker nation.

Old Don Diego de Salines, its old Spanish governor, was moved one day to capitulate. It reminded us of the story of Mark Twain, where he was practising with a new revolver, and accidentally shot a mule. He explains his buying the mule by the fact that the owner, who held in his hands a double-barrel shot-gun, persuaded him to buy the mule, although he didn't want the animal. So the old Don down here in this rocky fortress although a brave man, saw that resistance was useless, and was thus persuaded to haul down the flag

[1] Continued from No. 803, page 100.

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of Spain, and allow the usurper to plant above it the hated British ensign.

Spain meanwhile, of course, looked over from her hills across the sandy strip of land with disgust. To think that another power held sway and dictated terms was in itself a most bitter pill, but to find that this foe held the very front door fast, and would allow neither entrance nor exit without the permission of the Lord High Chancellor — this was indeed more bitter still. To then plant under their very nose a board fence, and to paint upon it the sarcastic direction "that this was the road to Spain," made every Spaniard hate his obnoxious neighbor.

Time went on, the big guns of England pointed their mouths towards Spain for seventy-five years, until at last, patience being exhausted, she agreed to join forces with France, and fight to regain what she had lost. Time and again they gathered their combined forces, and threw them across the sandy peninsula against the rocky sides of Gibraltar, but to no end. England's tenacious grasp could not be shaken. Ages before this, Gibraltar had been a kind of shuttle-cock between the Moors and Christians, but of this time I need not speak.

Spain, as I have said, was disgusted at seeing another power directly under her nose, and she again resolved to recover it if possible. From June, 1779, to January, 1783, therefore, she kept up a siege, only to be repulsed at every endeavor to gain an entrance. Fleets came to England's assistance, destroyed the fire-ships of the Spaniards, and left only a narrow strip of land as the ground on which any dispute could be fought out; and as this strip was very small, and at best only a few thousand men could be worked to any advantage, the English were enabled to hold the forts and prevent any breach in the walls. But these attacks, however, troubled John Bull a good deal, and he was most anxious to fortify himself in the most perfect manner possible. General Elliott being in charge during the last great struggle observed that the power of the enemy was greatest on the land side, English ships-of-war being fully able to cope with almost any power on the water sides. Here, then, was the weak point, and so troubled did the old general become, that he was led to offer a reward of a thousand pounds for any method suggested that would give a flanking fire on the enemy. As the north and land side of Gibraltar is a sheer perpendicular rise of rock, hundreds of feet high, this seemed a perfectly safe offer. But immediately came forward a sergeant of Royal Artificers, who suggested that a gallery be cut in the rocky sides, openings left and manned with guns, and a veritable fort be formed that could drop shot and shell upon the invaders from the very heavens. This suggestion was at once acted upon, but history does not tell whether or no the sergeant ever received his reward; he deserved it at any rate, for it was the inauguration of one of the most glorious pieces of engineering on record, which forms the chief attraction of Gibraltar.

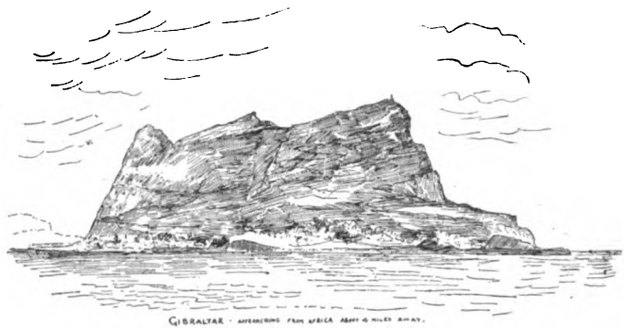
To-day with the increased fortifications and these rock-cut defences of the cliffs, together with the force that could be thrown into action on the water, it is doubtful if Gibraltar could not hold its own against the world so as to be absolutely impregnable.

What a beautiful picture it was that gradually became more clearly defined as the ship approached the Spanish coast; first a dim bank of apparent clouds, hardly distinguishable from the fleecy masses above, then a blue, hazy peak gradually turning into a well marked "loaf of rock," and at last walls of stone, defences, groups of palm and tropical foliage, an irregular line of old Moorish wall running half-way up the hillside, and at the very top a little tower station clearly defined against the blue sky.

Hundreds of small boats begin to be seen on all sides as we run up into the inner harbor and cast anchor. This meant the passing through a fire of hungry guides and boatmen, all anxious to garner-in the shillings, and ready to skin us alive, metaphorically speaking, did the chance but offer itself, and it is a question whether we preferred the volley of mother-tongue or the more picturesque mutterings of the Africans whom we had just left across the Straits.

Groups of sailors, brawny fellows in blue shirts with bright red caps and scarfs, pictures which would delight the eye of the artist, jaunty English soldiers with their funny little caps stuck on the side of their head, as if glued on, and a few solemn old Moors with yellow sandals and loose flowing robes and turbans — all these greet us as we clamber up the pier, and go through the operation of proving that we are not dangerous subjects, nor do we carry dynamite, nor whiskey, and furthermore that we do not intend to try and carry off the place surreptitiously; that on the contrary we are only bent on seeing all that is to be seen on their rocky little fortress, and that we desire to sketch and photograph its beauties.

The western slope of Gibraltar is one succession of gardens filled with the luxurious foliage of the tropics; ancient cork trees, oleanders



and rhodlodendrons, palms and large cactus plants growing to immense size, and toward the southern part of the town the fortress walls are actually overhung with their growth.

The rules of Gibraltar in regard to what may and what may not be done are very strict, and exceedingly amusing to an American. If you sit down a moment to sketch, a soldier taps you on the shoulder and stops you, for you must have a permit. If you set up a camera to get a bit of the beauty of the place, it is either felt to be an infernal-machine, likely to go off and knock out the bottom of the town, or a recording machine which might give an enemy a point as to its strength. You can buy photographs by the dozen at the store, but you must have a permit to take them yourself. If you walk around the massive fortifications to examine the huge guns standing like sentinels looking toward the bay, you are stopped, you must not examine them, they are patented and require a permit to look at them.

"Great Cæsar!" I exclaimed at last to a prim-looking soldier who saluted at the name of Gunner Saunders, "can I blow my nose around this hill, or take a view of Africa without a permit?" "No, sir, I think you must get a permit," he answered, but he smiled at my sarcasm.

So I put in motion the red-tape machine, and after three visits to as many persons, managed to get a mysterious paper which would allow us to sketch or photograph anything but the fortifications, and including no doubt the possibility of blowing one's nose if necessary.

Our little hotel was backed-up by the mountains: in fact, we could almost step out of the second-story window onto the mountain side, so close were the houses as they huddled under the hillside. And since all there is to Gibraltar may be summed up in the word mountain, the prominent excursion is up its sides, through its rock-cut fortifications, up to its signal top.

One beautiful morning at eight o'clock four little donkeys drew up in line and began their morning devotional exercises directly under our windows. Thus called upon, we descended, straddled their backs, and were soon ascending the hill in good earnest. The irregularities of wall which we had seen from the ship gradually came in view, and we soon passed through an old archway, now a part of the barracks. The view began to be magnificent, but it could be easily seen that it was but the beginning of things. It was only when we had ascended 700 feet above the water-level that our guide stopped and gave us an account of the different sights unrolled before our eyes.

It is at this point that the first tier of galleries begins, cut from the solid rock, and with large openings looking down from the precipitous sides, and through which poke the noses of enormous cannon.

The first suggestion of the inventive sergeant has been carried out, with several tiers of excavations, all mounted with huge batteries giving a flanking fire bearing upon the very entrance and land-approach to Gibraltar. To do this on the east would be useless as the rock is a sheer descent, from top to bottom, of 1,400 feet, and is certainly a stupendous sight as seen from the shore of the little fishing village of Catalan Bay.

No less secure are the defences of the westerly side, so far as fortifications are concerned, for the whole extent of coast-line is laid out with a double casement wall of immense thickness, and literally living with cannon.

As we entered the passages it became perfectly dark, and the little donkeys picked their way carefully over the stony floor, where the width is about ten to twelve feet. Here and there were large chambers hewn out of the solid rock, and large enough to hold a hundred men, possibly. At one or two of these points were steps reaching to upper galleries, and a tour of the whole gave one the impression of a honeycomb of fortifications, which could pour down tons of shot and shell without receiving any injury to itself.

When standing out upon a little promontory guarded by a railing the view is truly stupendous. Away to the eastward rolls the blue Mediterranean Sea, with here and there a sail or the smoke of a steamer, each looking like a mere speck. To the north is the flat, sandy connecting link to Spain, beyond which the mountains of

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Competitive Drawings
for the proposed building
for the
American Fine Arts Society
West 57th Street New York City.

Submitted by { Edmund B. Kelley Architect
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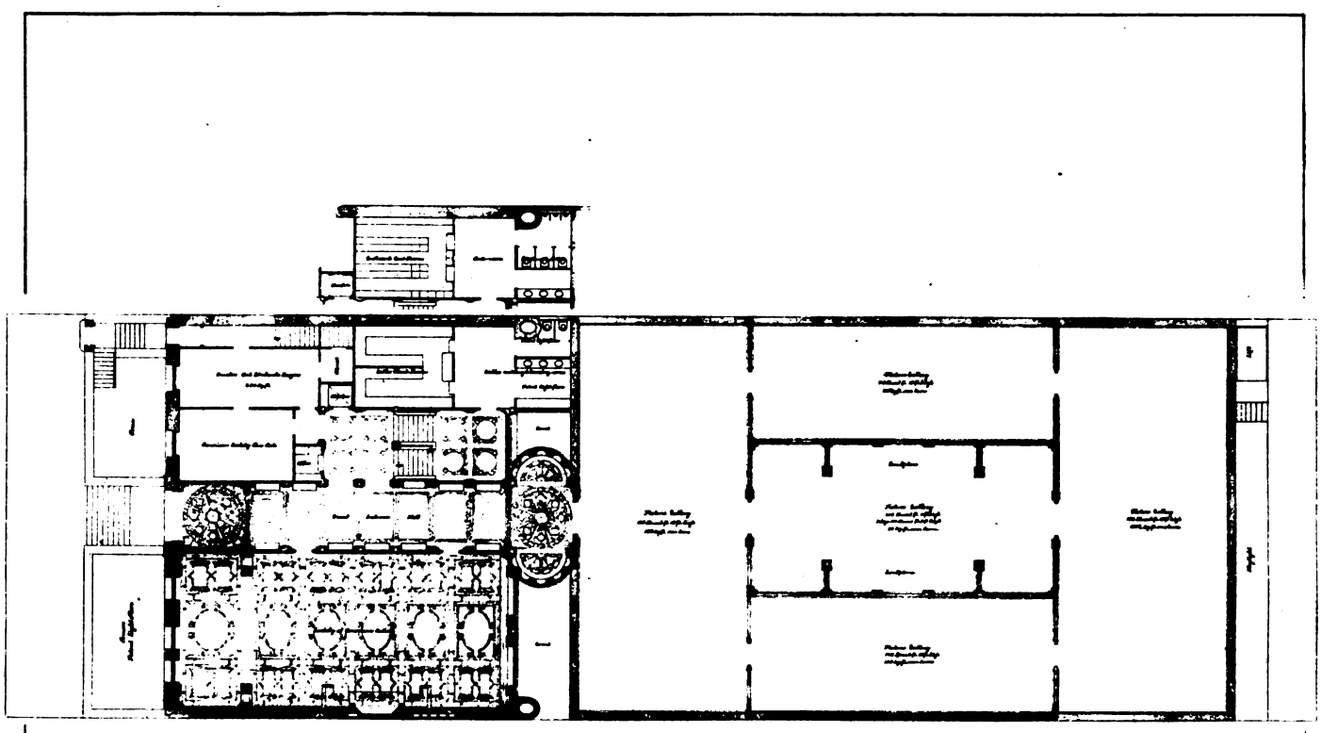

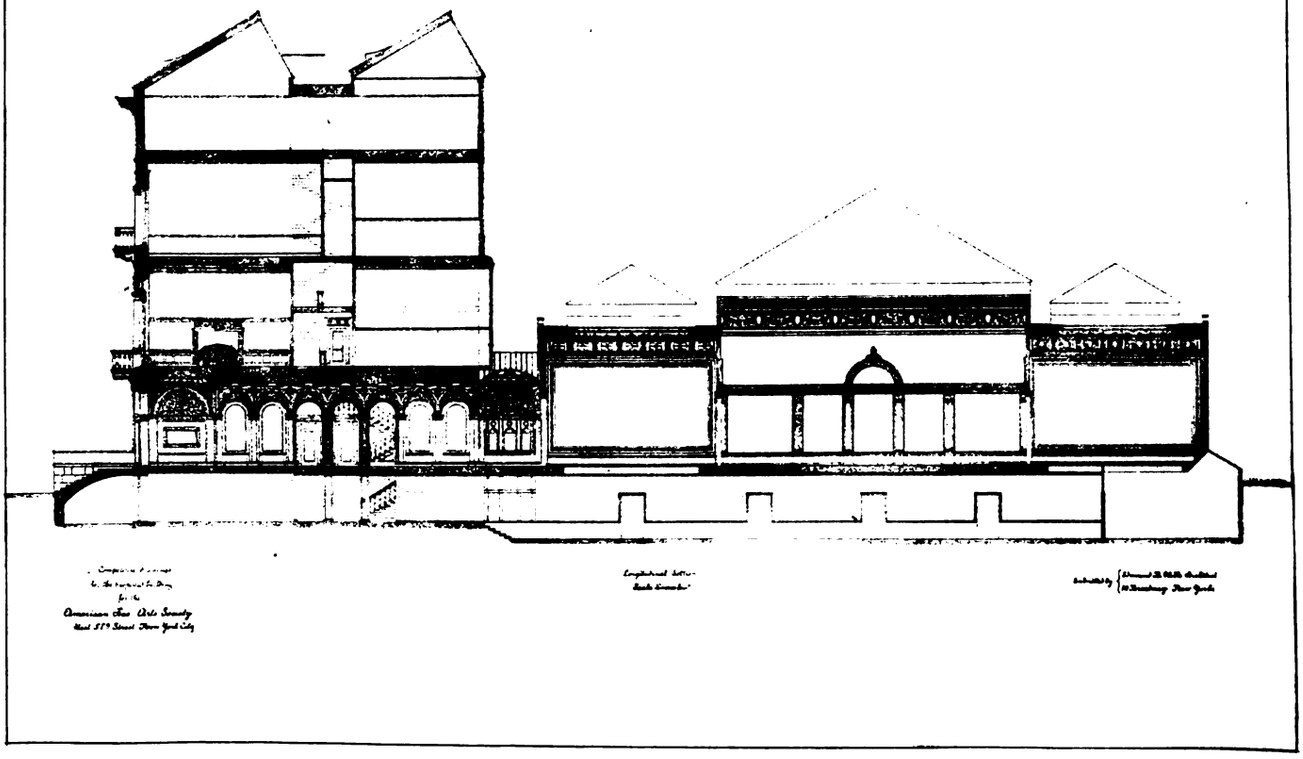

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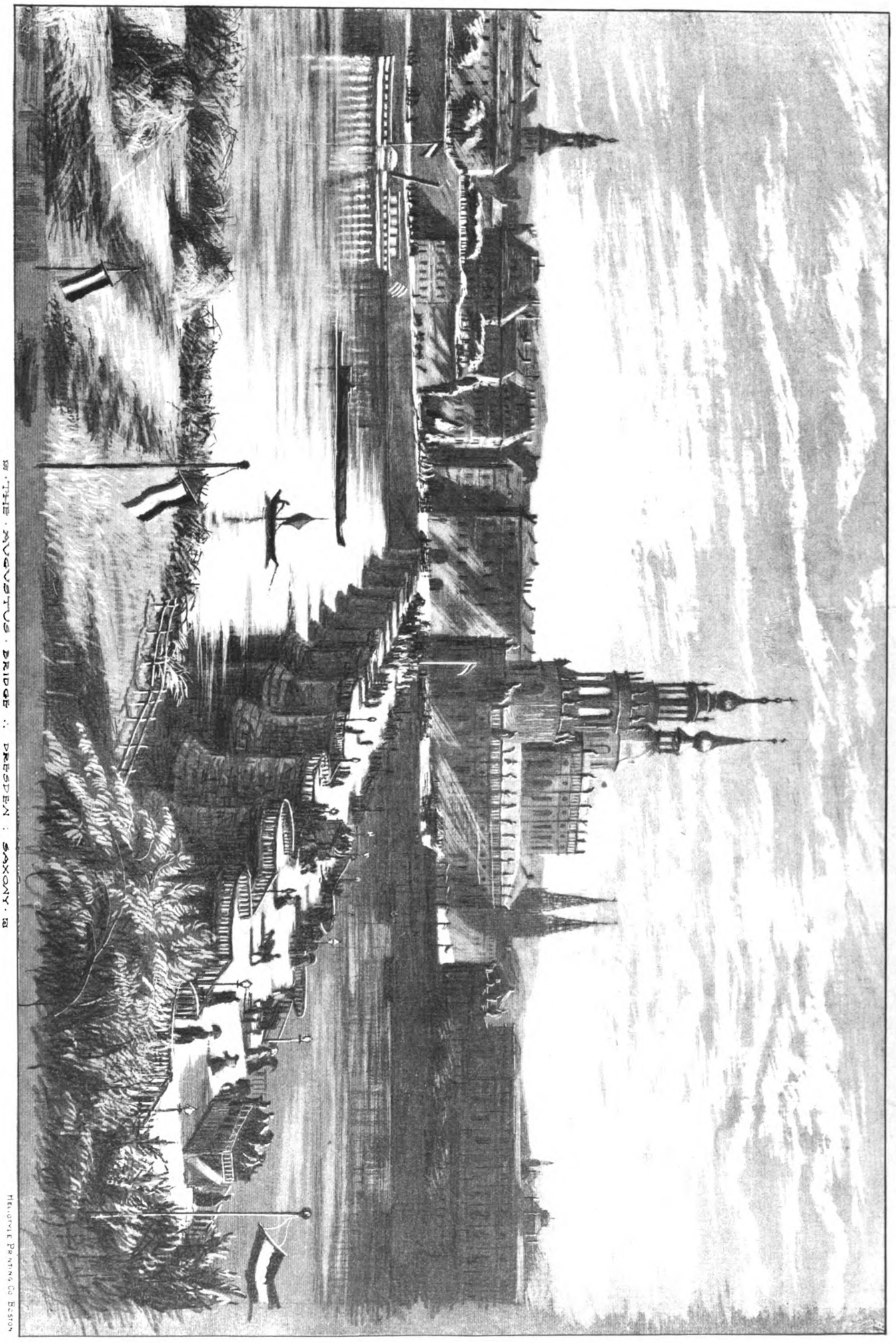

M. THE AUGUSTUS BRIDGE AT DRESDEN, SAXONY.

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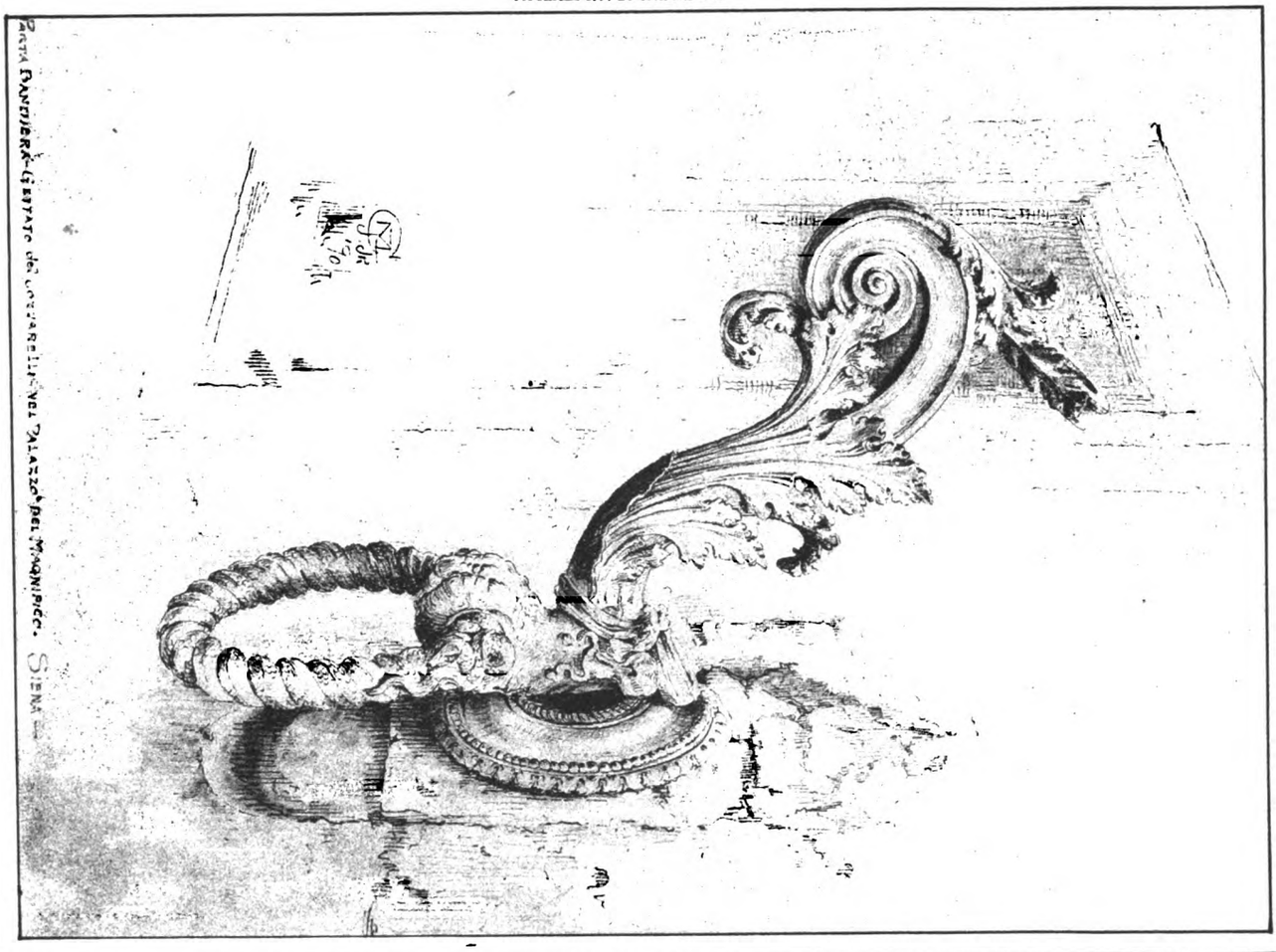

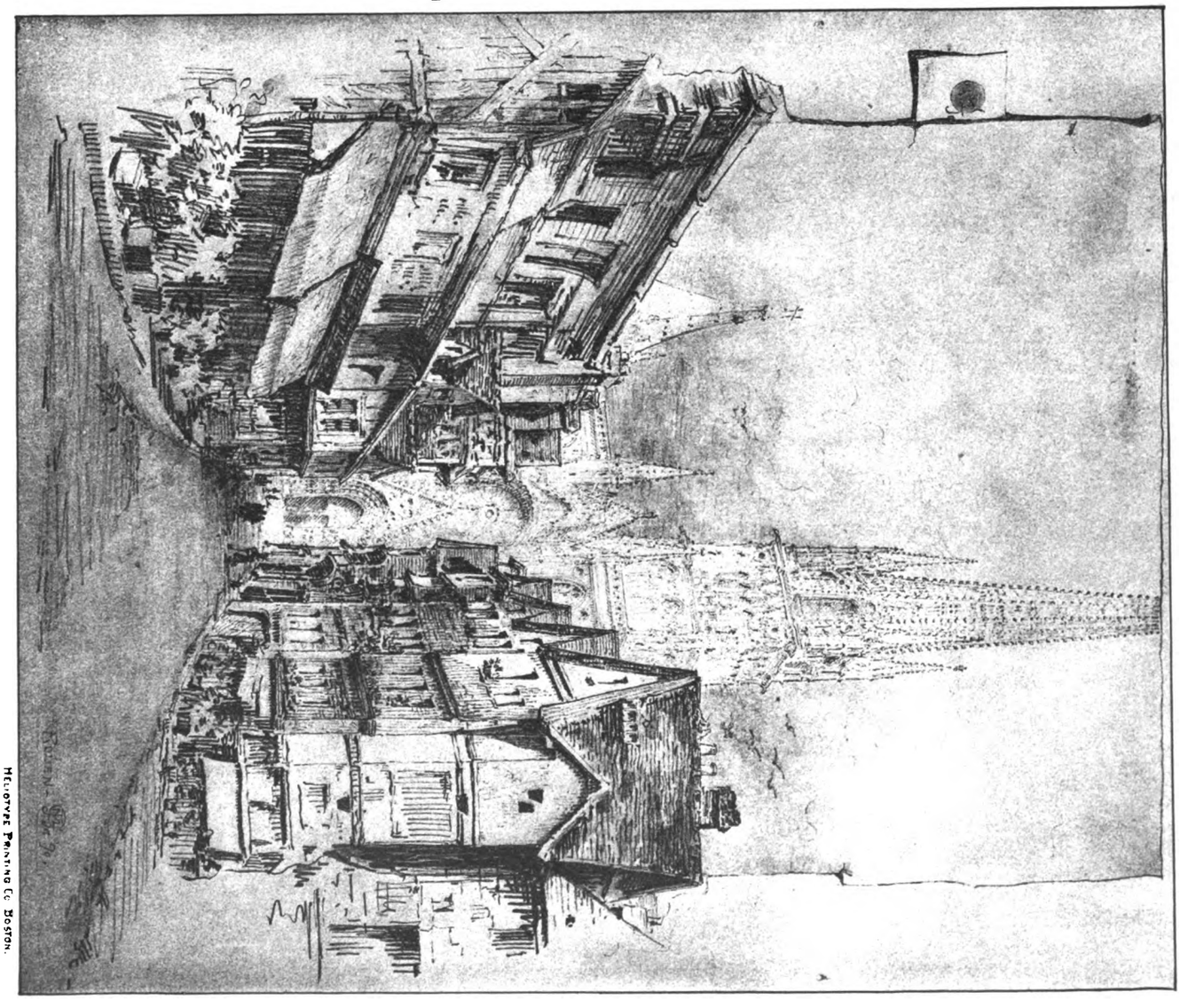

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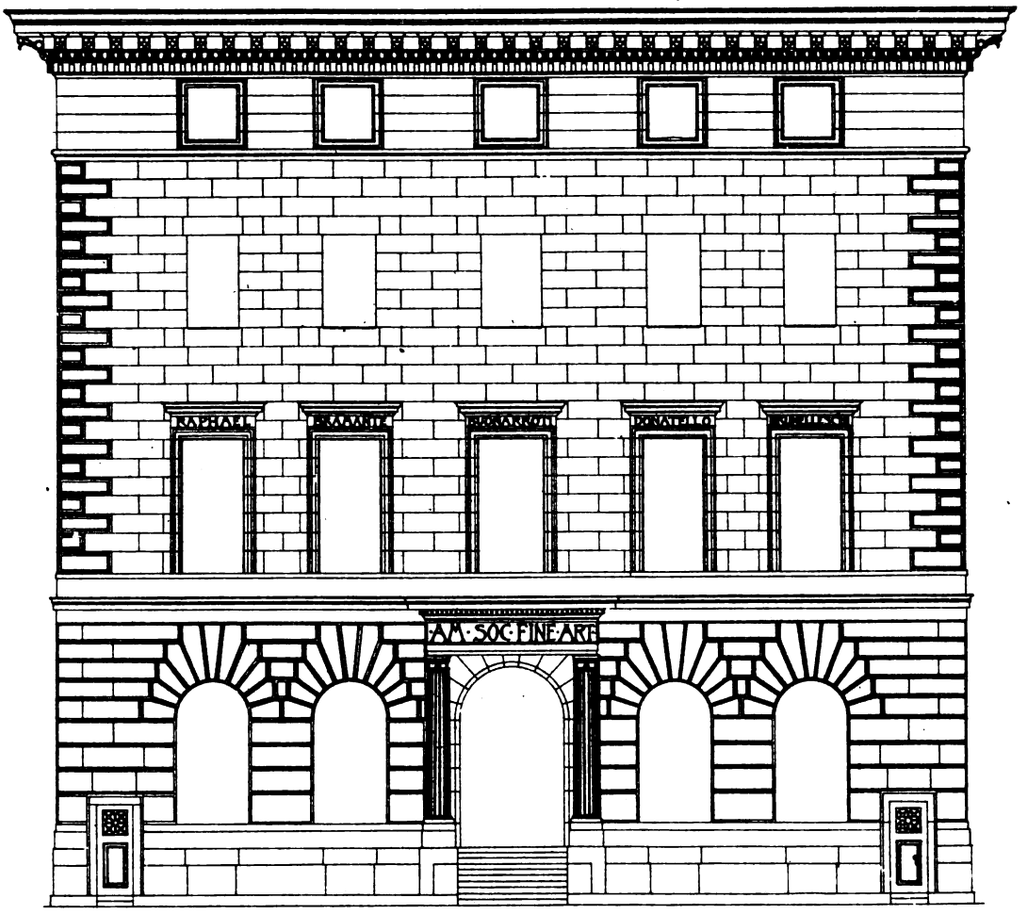

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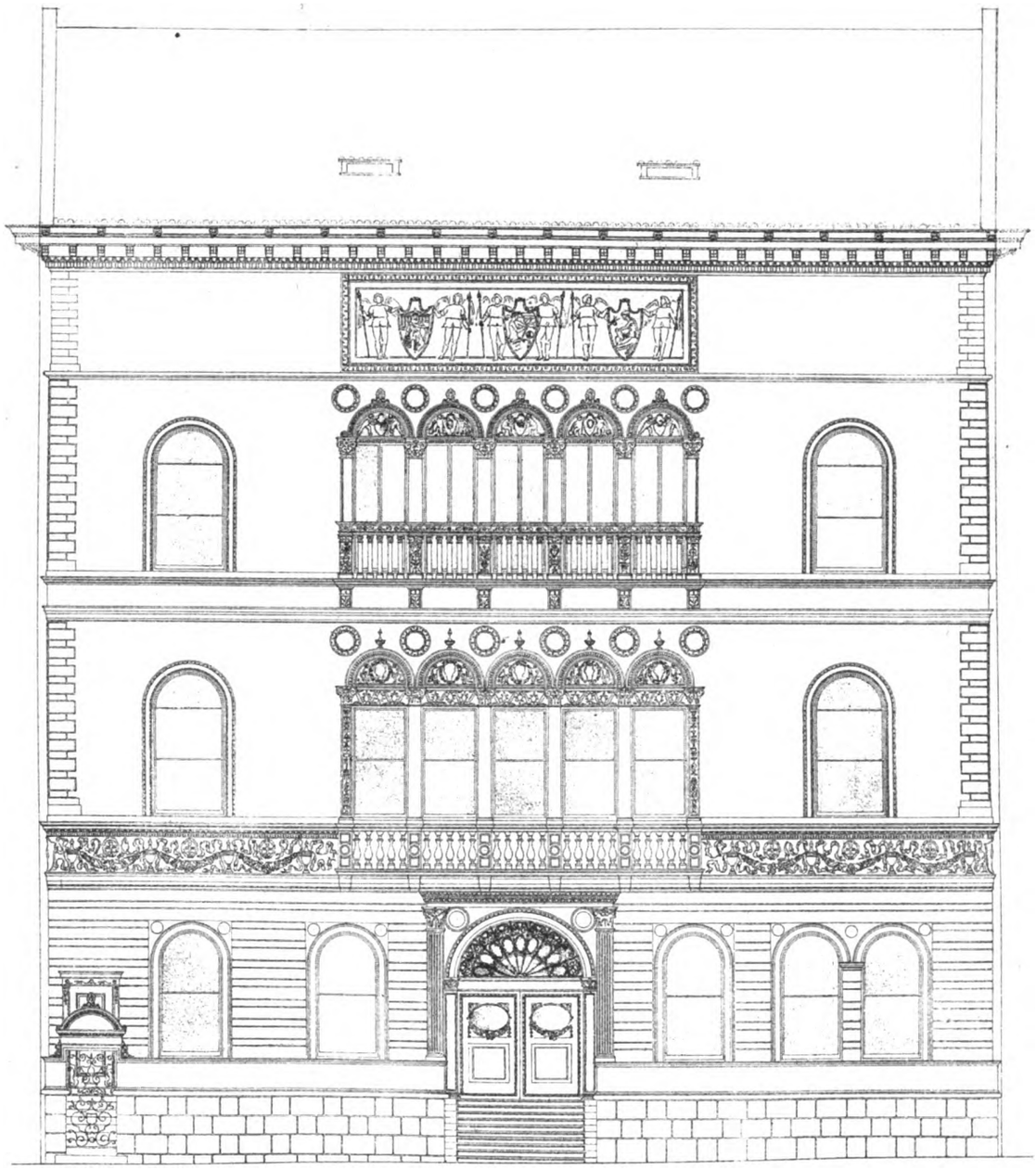

Competitive drawings
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Front Elevation
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n loom up, pile on pile, bringing to mind the famous old brigand Diego, whose house was in their fastnesses, and who though a ıtleman of the road" used not to be averse to squeezing the pipe of the unlucky voyager to an unpleasant degree, should esist the old rascal's demands.

Those mountains, too, were the harbor of all the smugglers of Gibraltar, who, whatever may be said of their diabolical character, add so much romance to Spanish history. They belonged to a special class who enjoyed a singularly brilliant reputation, and were the friends of artists and sculptors alike. The lower classes adored them, and delighted in nothing better than to urge them on as they jauntily sang their merry couplet "*yo qui soy contrabandista.*" A bottle of wine and a cigarette opened their hearts, and their presents of snuff to the curate, cigars and good stories to the tradesman, and gossip to the old women, kept them constantly in the good graces of the people, and smoothed over the little irregularities connected with the possession of their booty. You look for them now but you don't find them. They do not exist. Their *majo* costume and picturesque trappings have disappeared, and if you chance to see them at all, it will be in the cosmopolitan dress of the commoner.

Still to the westward we look over the bay, and discover a little straggling town known as Algeciras, lying under the low hills of the Spanish coast.

But you have at this point only gone half the distance up, and if your staying powers are good and your little donkeys in a happy frame of mind, you may climb away up, 700 feet more, and visit the sentinel tower, or the ruins of poor O'Hara's little pile, which occupies the extreme southern point. But the view is magnificent and repays the hard climb. From this point you may look down into the straits of Gibraltar and see the ships of all nations, as they pass and re-pass, and if the day is at all clear, the hazy, blue hill-sides of Africa are perfectly plain, and look as if they might be reached in an hour or so.

It is a charming sight either at sunrise or sunset. A sense of sadness and mystery cannot but fill one's soul as he looks out over the sea to the westward and sees the apparently unending reach of ocean. No wonder that the spirit of the ancients shrank from passing the unknown horizon behind which the sun sank from view. Up to the era of Augustus, they had never ventured beyond this rocky promontory on which we stand, but had written their verdict of the hardihood of such an attempt in the words of Ariosto "*La-meta qui posse ai primi naviganti ercolo in vitto.*"

Whatever goes up must come down, is a saying of old, and represents the natural course of things, in regard to humanity in general, who persist in ascending heights such as Gibraltar presents. After drinking-in this wonderful panorama, we turned the little donkeys' heads downward, and under the inspiration of their expected fodder they jogged rapidly along jolting us in a terrific manner and making our very teeth to chatter. "Gunner Saunders, sir," meanwhile enlivened the journey by reminscences of his life at this strange fortress town. "Eight years I have been here," said he.

"But you have been home to England during that time?"

"Never thus far, sir," he replied.

"And you go up over this rocky path nearly every day?"

"The same, sir, and shall go over it I suppose for years to come."

With this he touched his cap as he reached his station, while we jogged down the mountain-side wondering that such an existence could be endurable, and thanking our stars that we were not English soldiers, whose very life is little better than that of a horse who treads the mill day by day.

As I was saying, we jogged down the hill after what might be considered a hard day's work. Our little imps of drivers prodded the donkeys from a spirit of pure deviltry, I am sure, for they shouted and prodded until the poor beasts came to a dead halt, refusing to go on. The small boy has described the donkey to be a piece of architecture with a leg on each corner, and when these pieces of architecture came to a halt, they set up such an unearthly noise that we were all convulsed with laughter, and at last left their backs and ignominiously walked home.

It is impossible to speak of any architecture at Gibraltar, because there is none of any importance. The Cathedral Church is a grotesque Moorish attempt, and the Roman Catholic Church, still unfinished, shows no point of interest. In fact, the grand fortifications are far more interesting even architecturally speaking, their simple lines and stupendous masonry being fine examples of engineering skill.

One notices at the very top of Gibraltar, a little tower, known as O'Hara's Tower, which is said to have been connected with a highly sensational love affair of the old general of Gibraltar, but as it was struck by lightning some time since, it may be supposed that the arrows of Cupid could not prevail over the bolts of Jove. Following up the old Moorish wall, which has been built to cut off the enemy, the Signal Tower is seen; a point on which beacons are lighted in case of threatened attack.

No less interesting is the walk out of the town and around Gibraltar, towards the sea, with the huge mass rising above in all its grandeur.

Imagine to yourself, the huge rocky sentinel starting from the seas, and throwing up its proud head above the sands of the Spanish main. It is literally the end of things. At its base, nestling among the boulders, is the straggling town, made up of rampart and barrack, with a few stores and houses, two churches, a school and a large parade-ground. Farther along a beautiful garden is filled with tropical growths, spreading out their great leaves and palms under the warmth of the hot sunlight. Presently the town is left, and the hillside is reached, where great gorges are spanned by light iron bridges, and where little cottages nestling among the rocks, proclaim the abode of some of the officers and their families. Almost like Capri is the view, and we can hardly wonder that the officers are pleased with their homes, and vie with each other to be stationed at such a delightful spot. Soon the extreme end of the rocky promontory is reached, whence the mountains of Africa are seen, blue and hazy. We are at the end of a continent and before us are the huge batteries which are drilled to belch out fire and shell upon any invader. Troops are practising even now, and every few moments we see a soldier pull a lanyard with all his might, and a shell goes richochetting across the water at a target far out at sea.

We can go no farther around the rocky Mediterranean coast, as the rocks fall away nearly perpendicularly into the sea, and the huge waves dash themselves against a mountain of rock, 1,400 feet high.

At sundown the views are beyond description. The mossy sides of the mountain grow soft in the golden light, while the crevices and caves are thrown into deep shadows.

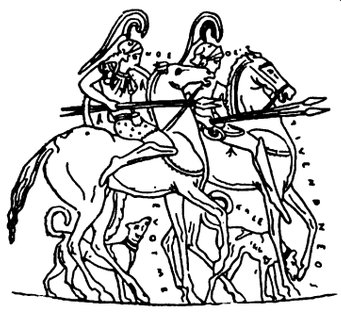
We left Gibraltar after three or four days. It was evening and the boat was to start after dark. Crowds of red-coated soldiers lounged around the big gateway and a few red-slippered Turks sat sedately in their bazaars. The sun sank slowly down below the horizon. Boom went the big cannon on top of the signal-tower! The big gates swung slowly on their hinges, and we were outside of Gibraltar. Woe to the Englishman who gets caught outside, or to the Spaniard who gets caught inside, for he must wait until the gun has announced another day and the big gates are again opened.

It commenced to rain shortly after we had left, and the little boat which was to take us across the bay to Algeciras being entirely open, we wrapped our *mantas* around us, and huddled together around the smoke-stack, Englishmen, Spaniards, Jews, Moors and Americans. An hour after, the big side of the Mediterranean steamer loomed up and we were hoisted to its deck. Soon she slipped her moorings and ran out around Gibraltar, while the huge mass of the old town arose like a grim spectre, cold and solemn. The lights at its base twinkled through the mist, and away up at the top shone one lonely light at the signal-station, a beacon for travellers, a ray of light upon a mass of darkness.

(To be continued.)

EQUESTRIAN MONUMENTS.[1]—XXXIX.

THE DUKE OF WELLINGTON.



Vase Decoration. After "*La Vie Privée des Anciens.*"

ONE of the English participants in the Napoleonic war absorbed during his life the greater share of praise which the English people, long kept in a state of constant dread of a French invasion, delighted to pour out upon those of every rank, both in the army and in the navy, who had a hand in the downfall of Napoleon. The Duke of Wellington was and still is the idol of the English people in only a less degree than was and is Lord Nelson, whose popularity is due, largely, to his being a sailor and partly to his being swayed by certain human failings which the impeccable Wellington did not yield to, or, if he did, knew how to keep his follies out of sight. Still, for a man of his retiring and unbending character, he achieved an unusual measure of control over those who surrounded him, which must have been due to personal qualities and not merely to position and influence. It seems unquestionable that he was to a very great degree loved by many for himself alone and not merely for the successes he had achieved.

It does not fall to many to have an active career covering fifty-nine years of active public service of the most varied and important character and to acquit himself in most respects with the most absolute discretion. A man who has led such a life is worthy of all the fame that bronze and marble can bestow, and Wellington has received more of such honor than other Englishmen in about the proportion that his performance in intrinsic value exceeds theirs. Of the many statues of the duke no less than five equestrian have been erected, while several others have been modelled.

The latest of these, one of the last works of Sir Edgar Boehm, at Hyde Park Corner, has already been illustrated,[2] and at the time it was set up, in 1888, just forty-four years had elapsed since the first equestrian statue was erected. This, the statue in front of the Royal Exchange, London, is the work of Chantrey who had shown his competency to deal with equestrian sculpture by the statue of George IV in Trafalgar Square, which he had finished some fifteen years

[1] Continued from No. 803, page 104.

[2] See the *American Architect* for January 10, 1891.

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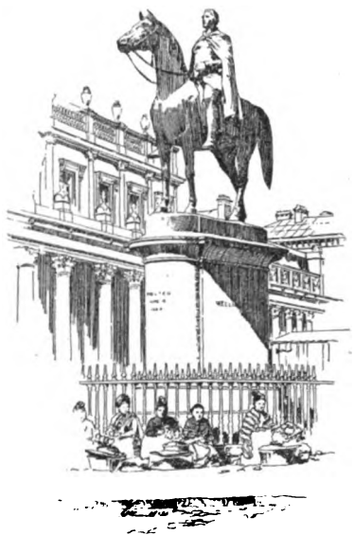
before. Chantrey was, however, about sixty years of age when the Wellington commission was placed in his hands, in 1839, and that he was willing to undertake at that age so lengthy and laborious a piece of work betokens a courage and confidence which may well be envied. He was not allowed to finish his work, however, and at his death, in 1841, his pupil Henry Weeks took up the task and finished it, it is understood, exactly as Chantrey would have. The statue embodies the same great "invention" which Chantrey devised when modelling the George IV, that is, the horse is resting quietly on his four feet and neither capers nor prances as bronze horses are most wont to do.



Wellington, Chantrey, Sculptor.

That Chantrey should have made a second use of the principles of composition he had evolved in his earlier statue was only to be expected, but that the facile Marrochetti should adopt them and for once turn the cold shoulder on the theatrical poses he habitually used for his equestrian statutes is notable, and shows how great a novelty the standing pose was at that late day. This statue of Marrochetti's was also erected in 1844 and like Chantrey's represents the Duke of Wellington is his marshal's uniform partly covered with the horseman's cape, and while the latter's statue stands in front of the Royal Exchange in London, the Italian sculptor's work stands in front of the Royal Exchange in Glasgow. The two statues cost practically the same sum, the Glasgow statue causing the expenditure of £10,000 and the London one £9,000 to which must be added £1,500, the value of the captured French cannon which were used for the cast. Both statues are of about the same size, the difference being mainly in the height of the pedestal which at Glasgow is only 8½ feet while at London it must be fully twice as much, at any rate, the entire group is 28 feet high. The Duke in both cases is shown bareheaded, in uniform with draped military cloak, and the poses are very similar. In both cases the treatment is markedly academic and in both cases the portraiture is good; in short, in date, in size, in pose, in cost, in detail there is a singular parallelism between these two statues.

What special influence brought the Glasgow statue into being we do not know, but in the case of Chantrey's statue the prime mover was a member of the London Common Council, Mr. Thomas Bridge Simpson, who had been much impressed with the merits of Wyatt's equestrian statue of George III, in Pall Mall. Being an ardent admirer of Wellington's and moreover possessing a becoming pride in "the city," which had been brought out of financial straits by the cessation of the war with France, he conceived the idea that it would be a graceful thing for the city to acknowledge the debt it owed to Wellington. Accordingly, having first ascertained that Wyatt would be willing to model a statue of the Duke, he broached the idea to the authorities and the men on 'change, who took up the scheme promptly

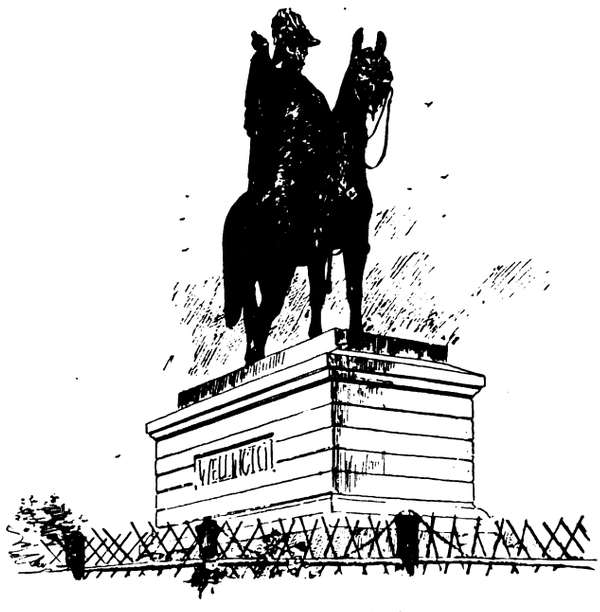
Wellington, Chantrey, Sculptor.

and quickly raised the needed fund. But here arose a difficulty; Mr. Simpson could start the ball but he could not control its course, and he found himself unable to carry out his implied contract with Wyatt, for the reason that a bare majority of the committee preferred that Chantrey should have the commission, the Lord Mayor giving the casting-vote.

But Mr. Simpson was a man of resource; he was loyal and sympathetic and he did not rest satisfied with the unique public acknowledgment, stated in the form of a vote of thanks, that he had been the "first man" to suggest the creation of such a memorial. London is a large town and the distance between the Royal Exchange and Hyde Park is but an outward symbol of the distance between a city man and a dweller at the West End—Londoners both, but none the less ever conscious of a kind of rivalry with one another. Mr. Simpson took advantage of this failing in order, perhaps, to save Wyatt from a too great disappointment, and immediately appeared as the promoter of a movement to erect a statue of Wellington at the West End, which should be not only a statue but *the* statue. There were several points in favor of the scheme; the more open character of the town at the West End affords better sites than could be found in the city, the people who dwelled there, though perhaps not richer than their neighbors who lived under the immediate control of the Lord Mayor, were wealthy and cultivated and, greatest of all, the Duke himself lived there, and it was ascertained that he would graciously raise no objection against the proposed memorial; on the contrary, would be becomingly gratified, and would give the artist sittings at his convenience.

Wellington at Hyde Park Corner. Wyatt, Sculptor.

So much being settled, the work of securing subscriptions was busily pushed, and at length a contract was made with Matthew Cotes Wyatt to execute a colossal statue for the sum of £30,000, and the sculptor and his son James began their work upon it in May, 1840, and were busily employed on it for somewhat over three years. This was expeditious work considering the size of the statue, for it is one of the largest ever executed, measuring about thirty feet in height twenty-six feet from the nose to the tail of the horse, which girths twenty-two feet eight inches, and whose fore-arm girths five feet four inches, while his head is six feet and his ears over two feet long. The weight of the completed group is between thirty and forty tons,



Wellington at Aldershot. Wyatt, Sculptor.

while over one hundred tons of plaster were used in making the model. The group was cast in eight pieces, the largest requiring the melting of twenty tons of metal, which were afterwards bolted and brazed together at the foundry adjoining the sculptor's studio

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before the statue was moved, rather more than a year being needed for the several processes.

Finally on September 28, 1846, the statue, slung on a car, itself weighing twenty tons, especially designed for the purpose at the Woolwich Dock-yard, was drawn through the aperture cut in the wall of the foundry, and under the traction afforded by twenty-nine brewery horses was successfully drawn to its place of erection, the operation being managed skilfully with the aid of a large detachment of riggers from the Dock-yard. Nearly four hours were consumed in the transit, which was the occasion of a general partial holiday.

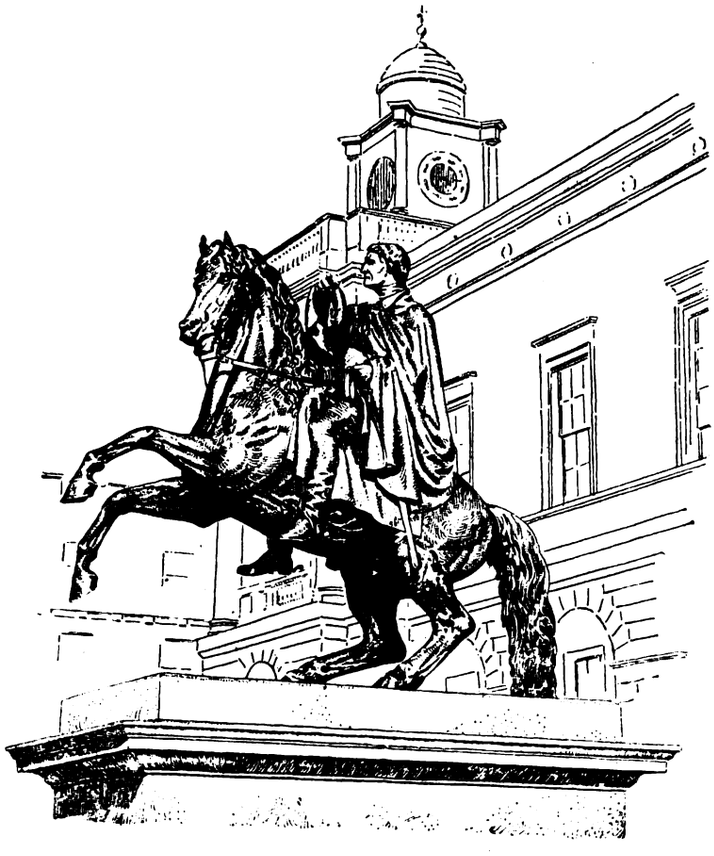
Wellington at Hyde Park Corner as seen by Mr. *Punch*.

The site selected for the statue was the arch at Hyde Park Corner, through which entrance is had to Green Park, designed by the architect Decimus Burton, who did all in his power to prevent his modest bit of architecture being put to a use for which it never was intended. He represented that, for a triumphal arch, his arch was one of the smallest, while the statue was one of the largest, and their juxtaposition must do wrong to both, and that, moreover, the structure of the arch was not such as to give sure and safe support to the mighty mass of metal above. Burton was not the only person who opposed the use of the arch as a pedestal for the statue. Never has a question of the kind caused the expenditure of more ink, heat and spleen: the forensic battle was joined as soon as the arch was suggested, and it was waged with little interruption for over thirty years before the opponents of the scheme finally had their way. Before the statue was erected, the Royal Academy was appealed to, and twice responded by solemnly protesting against the proposed use of the arch, and Parliament was petitioned, the Queen appealed to, but all in vain. Some one, it does not appear who, possibly it was the Duke himself, had enough influence to thwart all the pressure the protestants could oppose to the use of the arch as a pedestal. Ridicule and satire, calm expostulation and vehement protest, diatribes of every kind, poetical and prose alike, have been showered on this unfortunate statue as never before or since upon any other. The editor of *Punch*, aided by his able cartoonists, was unwearied in his efforts, and it is more than probable that the efforts of this journal had more to do with manufacturing public opinion than those of the recognized critics. But all protest proved fruitless. Burton was ordered to strengthen his arch to receive its load and do what he might to connect the long horizontal line of the cornice with the base of the statue.

After all, we believe that all the great ado made over this statue was factitious and needless, and based largely on a preconception, which had become too deeply rooted before the statue was set in place for those who once had harbored the idea to see that, although arch and statue were not designed to go together, the result was far from being as bad as it was asserted to be. To be sure, the arch was not designed for the statue, but the statue was modelled for a place upon the arch, and, moreover, before the work was begun, the sculptor had the benefit of seeing a wooden model upon the arch which the Government, without consulting the sculptor or the committee, had placed there for the purpose of determining whether any equestrian figure would look well in such a position. The general trend of criticism has always been that the statue was too large for the arch, but we believe that, on the contrary, the real defect was that it was too small when seen from front or rear, or from any point save nearly a full side view. If the sculptor had modelled at the side of the Duke one of his aide-de-camps receiving his orders — a course which would have still more overloaded the arch, from the general standpoint — we believe that the additional breadth in this way given to the group would have stilled the voice of adverse criticism.

Punch's Suggestion for finishing the Wellington Monument in St. Paul's.

At length, after nearly forty years of discussion, it was decided to stop the dispute, and the statue was accordingly taken down in January, 1883, by lowering it through the crown of the arch, which was cut open for this purpose. [The method of ascent was different, a formidable scaffolding having been built at one of the ends of the arch, by the aid of which the statue was swayed up to the proper height, and then, by a travelling trolley-car, moved horizontally over its intended place on the arch.] But, after the statue had been lowered to the ground, no one knew what to do with it, and it remained in front of the arch while a discussion — seemingly as endless as that which attended the taking-down and re-erection of Temple Bar — was joined by individuals and newspapers of every party. A site in St. James's Park, near the Horse Guards, was the one which met with most general approval, but it was finally decided that Aldershot, where the autumn manœuvres are held, was the best place for it; so in August, 1884, the group having been cut into its original sections, the great mass of dismembered metal was carted to Aldershot and there put together upon a low pedestal, which aids in giving a just impression of the immense size of the group, but which, if the arch was too small, must indeed be "overloaded."



Wellington, Edinburgh, Steell, Sculptor.

While the statue was being removed *Punch* had a final fling at it and suggested that now that the Duke and his favorite steed, "Copenhagen," were separated, they should not be brought together again, but that Copenhagen should become one of the permanent attractions of Astley's circus while the Duke should find a place on Stevens's unfinished mausoleum[1] in place of the equestrian group which Dean and Chapter refused to receive. As to this group, by the way, a petition signed by influential men is now in circulation with the purpose of procuring so strong a presentation of public opinion that the cathedral authorities will allow Stevens's model to be cast and placed upon the monument which shall be removed from its present position in an aisle chapel to a place beneath one of the nave arches for which it was designed.

Perhaps the West End no longer felt the need of rivalling the City's statue of Wellington, but Hyde Park Corner without a visible reminder of the conqueror of Napoleon seemed a veritable desert, so, at length, the Queen, who had always cherished a strong personal

[1] See the *American Architect* for October 12, 1889.

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friendship for Wellington, one of her early advisers, commissioned her Sculptor-in-Ordinary, Sir J. E. Boehm, to execute a new one[1] which as has been said already was unveiled in 1888, having occasioned the expenditure of £15,000 including the cost of pedestal, platform, etc.

Both Chantrey and Wyatt had the benefit of the sittings which the Duke was pleased to give them, a benefit which Boehm had not, and in both cases the portraiture is considered excellent. Still another sculptor had the advantage of modelling from the life, and his success was greater than either of his compeers', so great, in fact, that the Duke ordered two copies of the head and bust, one to be placed at Eton and the other in Apsley House. This fact seems to prove that, so far as portraiture goes, Sir John Steell's equestrian statue that stands in front of the Register House, not far from Scott's Monument in Edinburgh, is the most satisfactory statue of Wellington that exists. Yet when after his death, a few years ago, the sculptor's effects were disposed of at public sale no one was found to make a bid for the full-size model of this group — or for any other large models — and so it had to be broken up; whereas it might well have found a resting-place in some Scottish museum or the vestibule of some public building. The fact may simply show a lack of appreciativeness of a good thing which is not exclusively a trait of the Scotch character, or it may indicate that the public disapproves of the original statue which is hardly likely, for whatever may be thought of the unquiet and exaggerated pose of the horse, the figure of the rider is a fine piece of modelling.

The statue was erected on the anniversary of the Battle of Waterloo, June 18, 1852, and there were present at the unveiling a considerable number of veterans and pensioners who had taken part in that battle. Steell not only modelled but cast the statue, which is fourteen feet high, and is placed upon a pedestal thirteen feet high. The weight of the group is twelve tons and the cost was £10,000, a figure which recurs so often that it may be taken as an axiom that a bronze equestrian statue of colossal size cannot be executed by a sculptor of established reputation for less than $50,000.

Wellington, Terra-cotta Statuette. Bell, Sculptor.

Five equestrian statues only have been erected in honor of the Duke of Wellington, though, if the efforts of Sir Frederic Leighton and others are successful, Stevens's group may soon be added to the list, for his nearly completed plaster model stands in the crypt of St. Paul's, and it is estimated that to cast it and re-erect the completed mausoleum in its intended position would cost little more than £3,000.

Other equestrian statues have, however, been projected, thus the annexed cut represents a little terra-cotta sketch after the model prepared by Mr. John Bell for the City of Manchester, which was intended to typify the Duke's, perhaps mythical, order "Up Guards and at 'em!" After Bell's model was accepted, the authorities changed their minds and erected a pedestrian statue by another sculptor.

Ireland, too, felt some degree of interest in the Duke, though his interest in the island of his birth was never particularly marked, and it was the intention that an equestrian statue should accompany the great obelisk in Phœnix Park, Dublin, known as the "Wellington Testimonial." It is not known whether this intention received even the development of models prepared by one or more sculptors; if any were offered there was probably not enough money to be had for the execution of any one of them. But the original idea is still kept in sight by some, and when Wyatt's statue was dismounted, one of the spots suggested for its final resting-place was Phœnix Park.

The Count d'Orsay once modelled a statuette of the Duke which was esteemed so successful by his friends that this Admirable Crichton afterwards modelled several other equestrian subjects which were cast in bronze.

Mr. G. G. Adams also modelled an equestrian figure, far from being a bad one, which we conceive was presented in either the Edinburgh or Glasgow competition.

Wellington. — Arthur Wellesley, afterwards created Duke of Wellington; born in Ireland about May 1, 1769; educated at Eton and at the military college at Angers; entered the army, 1787; went to India, 1796; major-general, 1802; won the battle of Assaye, 1803; returned to England, 1805; elected to Parliament, 1806; Irish Secretary, 1807; lieutenant-general, 1808; won the Peninsular campaign, 1808–1814; British ambassador at Paris, 1814; represented England at the Congress of Vienna, 1815; gained the battle of Waterloo, June 18, 1815; member of the cabinet, 1819; prime minister, 1824; secretary for foreign affairs, 1834; retired from active public life, 1846; died at Walmer Castle, September 14, 1852.

(To be continued.)

[1] See the *American Architect* for January 10, 1891.

DUST AND FRESH AIR.[1]

Cathedral of Basil the Happy, near Moscow. From *La Semaine des Constructeurs.*

It is curious to contemplate how patiently the world puts up with small miseries, and never even asks the question whether they can be done away with. The entrance of dirt, *i. e.*, dust, into rooms, cupboards, closets, cases and drawers is so universal — worst in smoky towns, but not entirely absent in the country — is such a source of labor, discomfort and expense that the wonder is that, as a public question, it has never been made a subject of serious inquiry and study. The cost of dust to the whole country is enormous, whether we consider our museums or the cupboards and drawers in private houses. The subject may be best treated in two divisions — one that of closed cases, cupboards and drawers; the second that of rooms containing a fireplace. The first division is perhaps the most far-reaching and important, and may be taken first. In dealing with closed spaces I may take it for granted that, do what we will, have as good workmanship as we can get, dust will get in. It is barely possible by mere "fitting" alone to keep out the dust. Grant me this, and we have a starting-point of common agreement, which will perhaps be but strengthened by any exceptional instances in a contrary direction, which prove, or put to the test, the general rule. Our next point is to inquire, How does the dust get in?

There are probably none of my audience who have not heard of the barometer. Many are in the habit of observing its movements day by day, and not a few, no doubt, understand the reason of the rise and fall of quicksilver in the glass. What do these changes mean and what do they record? When the air around us becomes condensed, shrinks into a smaller volume, it becomes heavier, puts greater pressure on the surface of the mercury, and makes it ascend in the tube. Then the barometer is said to rise. When the air expands, swells into a larger volume, it becomes lighter, the pressure on the mercury is less, the mercury sinks in the tube, and the barometer is said to fall. Therefore every change of height of the quicksilver which we observe is a sign and a measure of a change in the volume of the air around us. Further, this change in volume tells no less upon the air inside our cases and cupboards. When the barometer falls, the air around expands into a larger volume, and the wall inside the cupboard also expands, and forces itself out at every minute crevice. When the barometer rises again, the air inside the cupboard, as well as outside, condenses, shrinks, and air is forced back into the cupboard again to equalize the pressure; and, along with the air, in goes the dust. The smaller the crevice the stronger the jet of air, and the farther goes the dirt. Witness the dirt-tracks so often seen in imperfectly framed engravings or photographs. Remember, ladies and gentlemen, whenever you see the barometer rising, that an additional charge of dust is entering your cupboards and drawers. So much for the barometer, which is a very restless creature, rarely stationary for many hours together. But this is not all. We also have the thermometer. The temperature of our rooms varies daily, often considerably between midday and midnight, and greatly between summer and winter. What does the thermometer tell us? Not less than the barometer does it tell of change of volume of the air, though it is probably not so rapid in its effect upon air in enclosed spaces as is the change of volume indicated by the barometer. Most of you are familiar with a fire-balloon. The heated air filling the balloon expands and becomes lighter than the surrounding air, and up goes the balloon, until, the source of heat having become exhausted, the contained air cools, contracts, becomes as heavy as the surrounding air, and down comes the balloon again. So also, as temperature rises outside our cases, the increased warmth is slowly conducted to the air inside the case, when the air expands and escapes through the crevices. Then, when the turn for cooling comes, the air inside slowly contracts, and back rushes the air through the crevices, and again in goes the dust. Thus we see we have two factors constantly acting, one or other tending to produce daily, nay, hourly, changes of volume of our dirt-carrying air. In order to inform myself of the amount of change of volume that could, under extreme conditions, possibly take place, I asked Professor Rucker to kindly calculate for me the change of volume that would take place in 100

[1] A lecture by Mr. T. Pridgen Teale, delivered before the members of the Leeds Philosophical and Literary Society.

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cubic feet of air between a temperature of 30 degrees, *i. e.*, just about freezing point, in combination with the barometer standing at 30 inches, or about "fair"; and a temperature of 60 degrees combined with the barometer standing at 29 inches, or stormy." He told me that the difference would be about 10 cubic feet, or one-tenth; in other words, that a closed case of 100 cubic feet, if hermetically sealed at a temperature of 30 degrees, with the barometer standing at 30 inches, would have to resist the pressure equivalent to the addition of 10 cubic feet, when the temperature rose to 60 degrees and the barometer fell to 29 inches. Have we not now discovered the reason why dirt enters closed spaces? What shall be the remedy? Seeing that air will find an entrance, and in the nature of things must get in, why, then, you must let it in, not at innumerable uncovenanted small crevices, but at your own selected opening, specially provided. Then you are in a position to shut off the dust by providing your selected opening with a screen, which acts as a filter. But, you will say, there are still the crevices; will not the dust enter by these as before? Probably not to any great extent if you have fulfilled this one condition — that you have provided entrance for air through your screen, which is easier than entrance through crevices. This is approximately true for narrow chinks and wide crevices are bad workmanship and inexcusable. But, you may ask, what grounds have I for thinking that air will not squeeze through narrow channels if it has an opportunity of going through much larger ones? Let me remind you of a diagram of an experiment in my book," "*Dangers to Health*," plate III. You can make the experiment yourselves on your return home. In a room with a good fire and doors and windows shut, take a candle and hold it opposite an open keyhole, so that the flame, though blown horizontally, is not quite extinguished. Then let some one slowly open the window. As the window opens the flame gradually recovers an upright position, and as soon as the window has been opened to the extent of 3 or 4 inches the flame will be at rest. The air current through the keyhole has been as effectively stopped as if the keyhole had been plugged. This observation seems to lead to two important points which, however, my experiments have hitherto failed to establish — one, that if we can ascertain what for each instance, or for a given cubic space, is a sufficient screened opening, we can prevent the entrance of dust-laden air by the uncovenanted narrow chinks and small openings; the other, which is the converse, that if we can make our fittings nearly air-tight we can in such instances afford to admit the air through a comparatively small area of screen. I fully believe the principle to be true; but I have not yet discovered how to secure its perfect application in detail. These, then, are the general principles on which we must act. The rest is a question of detail. The details range themselves under three heads: 1. What is the most effective, or the most generally applicable, filtering material? 2. Given the filtering material, what ought to be the proportion between the area of the screened opening and the cubic contents of the case to which it has to be fitted? 3. What, in any particular instance, is the best situation for the filter?

What is needed in our filtering material is that it shall readily allow air to pass through, and shall also possess the quality of arresting in its meshes fine particles of dust. For some purposes it may suffice to use a coarse canvas, the threads of which are not too closely twisted, and have an abundance of fine fibres projecting from them, thereby reducing the small squares of the woven texture to a still finer mesh. The material I have used most frequently is "bunting," but it has disappointed me. When examined by the microscope, many of the small squares of mesh are deficient in delicate fibres standing out from the threads, which would enhance the filtering power of the texture. Lately I have tried other materials, velvet, demette, flannel and cotton-wool between layers of muslin, such as is used for dressing wounds under the name of Gamgee tissue. Cotton wool is probably the most perfect filter. Indeed, so perfect is it that in the new science of bacteriology it is used as a most effective means of excluding dust and germs from flasks in which experiments are carried on. In order to put various textures to an exact comparative test, experiment was tried. A series of boxes were made, one foot square by two feet in length, open at each end. One end of each was closed by a square of glass loosely fixed by small nails, to imitate a badly-fitting door. The other end was closed, in the case of one by wood, to represent the ordinary unventilated cupboard, in the case of a second with bunting, of a third with flannel, of a fourth with cotton velvet, of a fifth with cotton wool. In each were placed slides and cards on which dust might settle. The slides were placed in the boxes on December 14, and were removed February 26, *i. e.*, at the end of nine weeks; but the results are imperfect, chiefly owing to the contraction of the wood, which in three instances broke the glass, and so invalidated the experiment. But some facts of importance come out. First and foremost, the fact that in nine weeks a serious amount of dust entered several of the boxes. The box without a filter had by far the most dust. The box with cotton wool had the least. This is about all that can be said about an experiment which, with reference to this lecture, is perhaps a failure, but will prove an incentive and a guide to further experiments in the same direction. Failure in detail not unfrequently points the way to eventual vindication of principle.

This is a question which experience alone can decide. Doubtless the larger the area of screened opening, the more effective the filtration. For a bookcase with glazed front probably the whole of the back might be made of canvas stretched over the necessary skeleton framework. For a cupboard or closet, every panel should be replaced by screen. If the closet have a window, all crevices and joints in the window should be pasted up to exclude the soot, otherwise the wind from the outside, or the fires of the house from the inside, will force the air and soot through.

Where shall we place our screen? This is a question which admits of a variety of answers, and gives scope for endless ingenuity. In anything which is being newly made, such as the cupboards and closets of a new house, or in new furnitutre, we are masters of the situation. In many of them we may substitute at the back our filtering texture for wooden boards, and perhaps even save expense thereby. In closets we may replace the panels of the door by filtering texture, guarding the closets, if necessary, against thieves by wire netting or iron bars fixed on the inner side. As a rule chests of drawers may have the filter over the whole surface at the back, care being taken that the back of each drawer falls half an inch short of the top of the drawer to allow free entrance of air from the screen at the back. In one set of drawers, so placed that I could not get at the back, the difficulty was got over in this way. In the front of each drawer a series of about twenty holes of an inch diameter was made for admission of air. The filter, on a frame, was fixed on the inner surface of the front of the drawer so that the material should stand half an inch away from the holes. A somewhat similar plan was adopted in a mahogany bureau. About twenty large holes, two inches in diameter, were cut in the woodwork at the back, some of the holes being opposite drawers, some opposite pigeon-holes. Then the whole was covered with bunting, on a frame so arranged that the bunting was fully half or two-thirds of an inch away from the wood. Another method has been adopted at the Yorkshire College for some of the cases. The filter was applied at the roof, somewhat after the fashion of a weaving-shed roof, the vertical face being filled-in by the screen. Again, Mr. Branson has provided a roof-filter for a case of scientific instruments by placing the screen in the roof of the case, and protecting it by a false roof two inches above it, to prevent its being choked by falling dust.

We are now in a position to ask two questions: Has the plan been tried? Does it answer? To the first, I may reply that I have tried it, more or less, for twelve years, my earliest views having been published in 1879, in the first edition of "*Dangers to Health*," when my first experiment was made in the entrance-hall of this building. To the second, Does it answer? I may reply that I can hardly give a more convincing proof of my confidence in its value than this, that I have gradually applied a filter to nearly every cupboard and closet that I possess. In drawers so treated at my chambers at Cookridge Street, I can now leave papers and books uncovered, whereas formerly they had to be carefully wrapped up and labelled. The same statement may be made as to a large closet in the same house, where I have placed bunting panels, and have pasted up the window crevices. My house at Headingley being absolutely devoid of a box-room, I erected some ten years ago a large box-closet in the granary — a dusty place, if there is one. It was constructed of a wooden framework, covered with coarse canvas, the roof being made of boards. In this closet portmanteaux and boxes can lie for months without becoming either dusty or mouldy. Perhaps the most perfect proof of the accuracy of these views that I possess is the following; Some five years ago, by the advice of a friend, I doubled the panes of glass in the north window of my bedroom, in order the better to keep out the cold, or, more correctly speaking, perhaps, to keep in the heat. Each new pane was fixed inside the old pane at a distance of two-thirds of an inch. The new pane was made to rest against a rim of wood about a quarter of an inch in width. In order to keep out dust, I had the rim against which the pane rested covered with cotton velvet. The pane was simply fixed against the velvet by about eight small nails. The whole of these years the inner surface of the panes has remained perfectly clean, and they have never been removed for cleansing. I may here just mention a few illustrations that occur to me, bearing out to some degree what I have been saying. I once suggested to the late Mr. Bell, watchmaker, the idea I have just mentioned for excluding dust from his cases containing watches and other valuables. I am afraid I did not persuade him to adopt it; but he was a very thoughtful man, and he told me it explained a thing he had often remarked, namely, that old-fashioned clocks which had open framework backs covered with silk always kept very clean. The silk had evidently acted as a filter. Then, not long ago a member of my family made the remark that there was very little dust in ottomans, and on examining their structure, you will find a framework of wood with nothing but some textile material outside which admits the air and acts as a filter. I was once on the point of buying an ice-safe in London, and while looking at some I was told that it was necessary to put a ventilator into these safes, and that it had been found that if cotton-wool was filled into the ventilator the meat in the safe kept much better than if it was left open to the air. Another point many of you will have noticed are the marks on a ceiling — the dark and white streaks. I believe these will be found to occur in a bedroom which is just under the open roof. The air is drawn through the plaster, and some dust filters through with it; but where the beams are the air cannot get through, and the ceiling is left clean. Then, as to the dust-marks on pictures, caused by dust drawn in owing to the changing volume of air, I am told that in the new museum at Berlin every case is fitted with a cotton-wool filter with a view of excluding dust.

The second division of my subject deals with the exclusion of dust

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and soot from rooms containing a fireplace. Let us pause for a moment, and consider what idiotic arrangements we submit to. First of all, we have the fireplace and chimney. The chimney throat, instead of being contracted, is generally a yawning chasm, providing the best attainable opportunity for smoking. Suppose we have a fire, as we must have for nine or ten months of the year. The fire draws up the chimney about 150 cubic feet of air per minute. Whence come the 150 cubic feet of air? If the windows fit well, as is sometimes the case in a new house, in vain the fire pulls upon the windows. If the door and floor boards and skirting-boards fit, they are appealed to in vain, and the poor fire has no other chance left but to smoke and smoke and smoke, until a charitable individual opens a door or a window. After a while no doubt woodwork shrinks, crevices and chinks open out, and our fire wins its much-wanted supply, and then, perhaps, ceases to smoke. But what next? In a town with an atmosphere laden with soot, in come the blacks, and cover our window-sills, our papers, our tables, and our books. Why do we submit to this? You may ask, Can it be avoided? I reply that it can. First provide an inlet for the air which has to supply the chimney, so that cold air coming in shall not be a draught. The best device that I know of for achieving this is the "Harding diffuser." It was patented. After a while the patentees ceased to make it. Then the patent lapsed, and now it is open to all the world to make. The Harding diffuser delivers the fresh air near the ceiling in a series of small jets, which mix with the warm air of the top of the room, and do not form a cascade of cold air, such as is produced by a Tobin's tube. At the same time it is but fair to say that we have learnt much from Tobin; first, that we ought to provide a definite inlet of fresh air to every room; and second, that we may mitigate the ill effects of a current of cold air by studying how to give it a harmless direction. Having provided for the entrance of air without producing draught, the next step is to filter the air and cleanse it. This is done by making the opening through the wall about five feet from the floor, and carrying the air up to the "diffuser" in a flat shaft, about eighteen inches broad and four inches deep, and about four feet in length, in which is placed diagonally a screen of canvas or other filtering material, through which the air must pass on its way to the "diffuser." The screen should be taken out and brushed with a soft brush at least once a week. This need of vigilance and attention to cleansing is the one drawback to the system. Having thus secured the entrance of cleansed air, the next point is to stop the window crevices. If the window can be cleaned from the outside, this may easily be done by putty, glue and strips of canvas. If the window cannot be cleaned from the outside — well. If you are putting in new windows, why not make them air-tight and wind-tight; do away with sashes and their abominations, and make the middle part on hinges to open inwards, so that the other parts can be cleaned without going outside? I trust, ladies and gentleman, that I have now said enough to make you uncomfortable and dissatisfied when you see your toilet-table covered with smuts or your drawers patterned in dust. Such things, I fully believe, need not be, ought not to be; and if you, the public, instruct yourselves and demand it, will not be.— *The Architect.*

DRESDEN.

THE most picturesque general view of the Alt-stadt is to be had from the windows of the Kaiserhof, which overlook the river and the old Augustus bridge. The latter was rebuilt in 1319, the money being raised by a Papal Indulgence; and the fact of its having withstood for more than five centuries the effects of ice, snow and floods (the water frequently rising eighteen or twenty feet in twenty-four hours) attests its solidity and sound workmanship. In 1814 the fourth pier upon the Alt-stadt side was blown up by the French to facilitate their retreat to Leipzig, two other arches falling at the same time.

Architecturally, the buildings of Dresden are in no wise remarkable. The old Zwinger Palace, now used as the National Museum, is in the style of the German Renaissance, or rather, Rococo; but the way in which the various wings of the building are grouped together, the quaint onion-shaped steeples, the stiff, sculpture-ornamented gardens, and the general appearance of worn-out grandeur and decay, make up a picturesque and not uninteresting mass. Then on the other side, the copper-roofed steeples of the Royal Palace (the Schloss) and the Catholic Church form, with the statue-decorated roof of the latter, a group which, if not architecturally imposing, is at least original. The Schloss was built in 1534, and, excepting the Renaissance façade of a portion in one of the inner court-yards, is a sufficiently ugly building, unimproved by a hideous fresco frieze painted by Bendemann in 1845, representing the history of Saxony. From the tower, 357 feet high, a fine view of the neighboring country may be obtained.

The Hof-Kirche, built by Chiavesi in 1739–56, is an excellent example of the bad taste of the period, the decadence of Italian art, when the Jusuits had the upper hand and covered the churches with sprawling saints whose draperies were apparently blown by the four winds. Why the Cardinal Virtues, Saints, Angels, Cherubim and Seraphim, should have been conceived to flourish in another world, tossed and torn by the gales and cold blasts of our earth, it is hard to understand, but such was the case, and we see the results wherever we go. In Romanesque or Gothic architecture each country has its own individuality, but Rococo is of no nation; as the Jew is the Jew, and the Jesuit is the Jesuit, whatever his parentage or language may be, so is Rococo, Rococo. The organ, by Silbermann, is of a fine tone, and the music generally of first-rate character, the orchestra and singers being those of the Court-theatre.

The glory of Dresden is its Raphael, the "San Sisto Madonna," which the museum honors with a room to itself. Undoubtedly, Raphael's finest oil picture, it is also the main attraction of the gallery, and well worthy a pilgrimage to Dresden to see. Broader in treatment than any of the other Madonnas, it is in color richer and in handling freer than the Ansedei, the Della Sedia, the Granduca, or the Canigiani. But when one has seen the Raphael, the three or four Velasquez portraits, the Holbein portrait of Morett, one or two of the Rubens and Riberas, what remains to warrant the tremendous reputation of the Dresden gallery? There are no Rembrandts to compare to those at Cassel, no Vandycks to equal those at Munich, and noTitians of the beauty of those at Paris or Venice; of the Correggios I say nothing, and of the numberless "cabinets" filled with the Dutch or Flemish painters, it is needless to speak, these masters being everywhere, and always at their best; though it is remarkable, that, amidst the crowd of Dutchmen at Dresden, there should be no specimen of the best painter of the school, de Hooghe.

But if the gallery is overated, the theatre cannot be. Whether one hears a cycle of Wagner's operas, or of Schiller's plays, the art displayed is consummate. Acting, music, singing, scenery, all are of the best, but all keep their right places; and when one thinks of the highest price being under a dollar, and the lowest twelve cents, one can only wish that elsewhere we had the same opportunities of improving our minds, and of enjoying great poetic works dramatically represented. Of course the theatre is subventioned by the king; but elsewhere, although we pay six or seven times as much, we certainly do not get the same artistic finish. To witness the perfect *ensemble* of the "Walküre" or the "Götterdämmerung" in Dresden, and then to attend one of the mutilated, ill-arranged performances at Covent Garden of "Lohengrin," is not flattering to English art, or creditable to a great nation. But then, are the English artistic in the true sense of the word? I fear me, no. S. Beale.

THE ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

BLOCK OF HOUSES AT THE CORNER OF NORTH CAPITOL AND B STREETS, WASHINGTON, D. C. MR. H. L. PAGE, ARCHITECT, WASHINGTON, D. C.

[Gelatine Print issued with the Imperial and International Editions only.]

TORCH-HOLDER FROM THE PALAZZO DEL MAGNIFICO, SIENA, ITALY. SKETCHED BY MR. J. M. GOODWIN, JR.

A STREET IN ROUEN, FRANCE. SKETCHED BY MR. J. M. GOODWIN, JR.

THE AUGUSTUS BRIDGE, DRESDEN, SAXONY.

See article on "Dresden," elsewhere in this issue.

COMPETITIVE DESIGN FOR THE AMERICAN FINE ART SOCIETY BUILDING, NEW YORK, N. Y. MR. E. B. WELLS, ARCHITECT, NEW YORK, N. Y.

This design was awarded the fourth place in the competition which was held last winter.

PLAN AND SECTION OF THE SAME DESIGN.

MAIN CORRIDOR OF THE SAME DESIGN.

COMPETITIVE DESIGN FOR THE AMERICAN FINE ART SOCIETY BUILDING, NEW YORK, N. Y. MESSRS. GILBERT & TAYLOR, ARCHITECTS, ST. PAUL, MINN.

[Additional Illustrations in the International Edition.]

DOORWAY OF THE HOTEL FELZIN, TOULOUSE, FRANCE.

[Copper-plate Etching.]

ONE of the characteristics of Renaissance architecture, whether executed in stone, wood, or iron, is the surprising skill shown in the sculptured compositions. For instance, take this old doorway, of which the leading lines and proportions are sufficiently Classic up to the top of the main entablature, and show no great innovation except in the rather extraordinary treatment of frieze. But above the entablature comes a kind of attic, loaded with sculptured decorations, yet combined in design and treated with a boldness evidencing a surprising degree of skill and knowledge: here are found fantastic animal forms, cartouches, masks and caryatides which indicate the possession of great artistic skill by the designer. And yet the interpretation of these details manifests an ignorance in their working [*ignorance "d'outil"*] which is altogether singular and can only be accounted for on the supposition that the designers still had before their eyes the wonderful remains of splendid works of Gallo-Roman architecture and copied them as best they could.

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VILLA SCHÖN, WAHRING, AUSTRIA. HERR J. WATASEK, ARCHITECT.

[Gelatine Print.]

CHAPEL ON THE EAST SIDE OF CHOIR, MONREALE CATHEDRAL.

[Gelatine Print.]

This plate, like the others of the series, is reversed in printing.

CHANCEL OF HOLY TRINITY CHURCH, SLOANE SQUARE, LONDON, ENG. THE LATE J. D. SEDDING, ARCHITECT.

THE NORTH CHAPEL OF HOLY TRINITY CHURCH, SLOANE SQUARE, LONDON, ENG. THE LATE J. D. SEDDING, ARCHITECT.

NEW GIRLS' HIGH SCHOOL, BLACKBURN, ENG. MESSRS. STONES & GRADWELL, ARCHITECTS. BLACKBURN, ENG.

THIS building, a view of which we give in our present issue, is designed to take the place of the existing school in Preston New Road, Blackburn. The present buildings were taken by a limited company in 1883, and opened as a girls' high school. The premises have now become much too small to accommodate the number of pupils applying for admission. The new building will stand on the site of the old one, which will consequently have to be taken down. In order to keep the school working, one-half of the scheme will be carried out first; the contract for this portion, amounting to 6,331*l*, has been let and operations commenced. The school when complete will accommodate 480 pupils, including 70 in kindergarten. The arrangements have had most careful consideration, and it is thought that the school will be one of the most complete of its class. The buildings will be of red brickwork, with buff terra-cotta dressings from the Burmantofts Company, Leeds. The roofs will be covered with brown-red roofing tiles from Raubon.

NEW RESIDENCE, TILEHURST ROAD, READING, ENG. MR. GEO. W. WEBB, F. R. I. B. A., ARCHITECT, READING, ENG.

THIS house is being erected for Mr. W. H. Staveley, on high ground, and contains three reception-rooms, housekeeper's-room, and the usual domestic offices, bath-room, and ten bedrooms, including servants'-rooms. The facing and moulded bricks are by Messrs. Lawrence, of Bracknell. The upper part timber and rough-cast.

ST. BENET'S CHURCH, PAUL'S WHARF.

COMMUNICATIONS.

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

INFORMATION WANTED.

66 Barth Blk., Denver, Colo.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Believing that a list of noted American architects, now deceased, with their principal works, and also a list of public and private buildings of note, with the names of their architects, put in permanent form, would be valuable and interesting to architects, I have compiled the following lists for publication in the "*Architects' and Builders' Pocketbook.*" There are many dates in the first list, that I do not know, and very likely there may be errors in both; for this reason I would be pleased if you will publish them in the columns of your journal, with this letter, and if any of your readers can supply me with the missing dates, or inform me of any errors in either list, I shall consider it a great favor. I should also like to make the list of State Capitols complete.

Yours truly, F. E. KIDDER.

[WE publish these lists with pleasure, for we feel sure that our readers will be edified by the facts stated, and amused at the inclusion or omission of certain buildings and personages in the following lists. Such attempts make strange bed-fellows indeed, and, if Mr. Kidder proposes to give so wide a meaning to the word "noted," his lists will have to be quadrupled in extent. — EDS. AMERICAN ARCHITECT.]

LIST OF NOTED AMERICAN ARCHITECTS.

John Haviland, *b.* 1792, *d.* 1825. Practised in Principal works: Pittsburgh Penitentiary, Eastern Penitentiary at Cherry Hill, Hall of Justice, New York, Naval Asylum, Norfolk, New Jersey State Penitentiary and many other jails, asylums and public halls.

Jonathan Preston, *b.* 1801, *d.* July, 1884. Practised in Boston, Mass. Principal works: the first building of the Massachusetts Institute of Technology, and the building of the Boston Society of Natural History.

William Washburn, *b.* in Lyme, N. H., 1808, *d.* in Boston, November 8, 1890. Practised in Boston. Principal works: The Fifth Ave. and Victoria Hotels in New York, and the Parker House, Tremont, Revere, Adams, Young's and the American House in Boston, the Tremont Temple, Boston, Charlestown City-hall and many other public and private buildings.

Thomas Ustick Walter, LL.D., *b.* *d.* October 30, 1887. Practised in Philadelphia, Pa. Was one of the original members of the American Institute of Architects, and President from . Received the degree of LL.D. from Harvard University, being the first architect to receive that degree in this country. Principal works: The five original buildings of Girard College, designed in 1833 and completed in 1847, extension of the National Capitol, 1851-65, also the extensions of the Patent-Office, Treasury and Post-office Buildings, the dome on the old Capitol, the Congressional Library, and the Government Hospital for the Insane, also numerous other buildings of lesser importance. Mr. Walter was a member of the Franklin Institute, and of many literary and scientific associations.

Arthur Gilman, *b.* *d.* Practised in New York and Boston, in partnership with Mr. Bryant. Principal works: Boston City-hall, First Church on Arlington St., Boston, and numerous dwelling-houses in New York and Boston. In association with Mr. Edward Kendell, designed the Equitable Life Assurance Co.'s building on Broadway, New York.

R. G. Hatfield, *b.* in Elizabeth, N. J., 1815, *d.* February, 1879. Author of the "*American House Carpenter*," and associated for thirty-five years with his brother, Oliver P. Hatfield. The firm became widely known as experts and consulting architects in matters pertaining to building construction. Principal works: House of Refuge, Randall's Island, N. Y., Westchester County Buildings, White Plains, N. Y., New York Institution for the Deaf and Dumb, Seaman's Bank for Savings, City Bank Building, Security Insurance Co. Building, all of New York City.

Oliver P. Hatfield, *b.* *d.* April, 1891.

John McArthur, Jr., *b.* in Scotland, 1823, *d.* January, 1890. Practised in Philadelphia, Pa. Principal works: House of Refuge, Continental Hotel, Girard House, Public Ledger Building, First National Bank Building, the Assembly Building, the Broad Street Presbyterian Church, all of Philadelphia, and the Philadelphia City-hall, also the Hospital for the Insane at Warren, Pa., Lafayette College, Easton, Pa, and numerous other public and private buildings in Pennsylvania and other States. Was twice tendered the position of Supervising Architect to the United States Government, but declined.

Ebenezer L. Roberts, *b.* 1825, *d.* Practised in New York City. Principal works: Standard Oil Co.'s Building on Broadway, The Ninth National Bank, The Baptist Church of the Epiphany on Madison Ave., St. Paul's Methodist Church on Fourth Ave., all of New York City, and the Phœnix Insurance Co.'s Building in Brooklyn, N. Y.

Alexander R. Esty, *b.* 1827, *d.* July 2, 1881. Practised in Boston. Principal works: Union Congregational Church, Boston, Harvard Street Baptist Church, Cambridge, Mass., Grace Church, Newton, Mass., Emmanuel Church on Newbury St., Boston, Buildings of the Colby University, Waterville, Me., Massachusetts State Normal Schools at Framingham and Worcester, and the University at Rochester, N. Y.

Carl Pfeiffer, *b.* in Germany, *d.* May, 1888. Practised in New York City. Principal works: Fifth Ave. Presbyterian Church, New York, Fifth Ave. Riding School, New York, and many private houses, apartment-houses, hotels, etc.

Charles Dexter Gambrill, *b.* 1832, *d.* September 13, 1880. Practised in New York, first in partnership with Mr. George B. Post, later with H. H. Richardson.

John H. Sturgis, *b.* *d.* Practised in Boston, Mass., with Mr. Charles Brigham, as Sturgis & Brigham. Principal works: Boston Museum of Fine Arts, Building of the Boston Young Men's Christian Association, Church of the Advent, residence of Mr. F. L. Ames, and many other fine residences in Boston and vicinity.

A. B. Mullett, *b.* 1834, *d.* October 20, 1890. Supervising Architect of the Treasury from to ; also Engineer of the District of Columbia for several years. The Post-office buildings in New York, Boston, Cincinnati, St. Louis and Chicago were designed by him, and also the State, War and Navy Building in Washington.

Henry Hobson Richardson, *b.* in Louisiana in 1838 or 1839, *d.* in Brookline, Mass., April, 1886. Graduated at Harvard University in 1859, studied seven years at the Ecole des Beaux-Arts in Paris Was associated for a short time with C. D. Gambrill, of New York. Following is a list of the works executed by him, arranged in chronological order:

1. Grace Church, Medford, Mass.
2. Boston & Albany Railroad Offices,
3. Church of the Unity,
4. The Agawam Bank,

   } Springfield, Mass.
5. House for William Dorsheimer, Esq., Buffalo, N. Y.
6. The State Asylum for the Insane, Buffalo, N. Y.
7. Exhibition Building, Cordova, Argentine Republic.
8. American Express Company Building, Chicago, Ill.
9. Brattle Street Church, Boston, Mass.
10. Worcester High-School.
11. The Hampden County Court-house, Springfield, Mass.
12. Trinity Church, Boston, Mass.
13. Cheney Buildings, Hartford, Conn.
14. Phœnix Insurance Building, Hartford, Conn.
15. House for B. W. Crowninshield, Boston, Mass.
16. The North Church, Springfield, Mass.
17. William Watt Sherman's House, Newport, R. I.
18. Portions of the New York State Capitol, Albany, N. Y.
19. Public Library, Woburn, Mass.
20. Ames Memorial Library, North Easton, Mass.
21. Sever Hall, Cambridge, Mass.
22. Ames Memorial Town-Hall, Easton, Mass.
23. Trinity Church Rectory, Boston, Mass.
24. Monument to Oliver and Oakes Ames, Sherman, Wyoming.
25. Gate Lodge for F. D. Ames, North Easton, Mass.
26. Crane Memorial Library, Quincy, Mass.
27. Bridges for the Back Bay Park, Boston, Mass.
28. City-Hall, Albany, N. Y.
29. Depot for the Boston & Albany R. R., Auburndale, Mass.
30. New Law School, Cambridge, Mass.
31. House for F. L. Higginson, Esq., Beacon Street, Boston, Mass..
32. House for General N. L. Anderson, Washington, D. C.
33. Railroad Depot, Holyoke, Mass., for Connecticut River R. R.
34. Depot, Palmer, Mass., for Boston & Albany R. R.
35. Depot, North Easton, Mass., Boston & Albany R. R.
36. Dairy Building, North Easton, Mass.
37. House for Grange Sard, Esq., Albany, N. Y.
38. Store on Kingston and Bedford Streets, Boston, for F. L. Ames, Esq.; also store on Washington Street.
39. Billings Library for University of Vermont, Burlington, Vt.
40. Depot, Chestnut Hill, Mass., Boston & Albany R. R.
41. Converse Memorial Library, Malden, Mass.
42. Baptist Church, Newton, Mass.
43. House for Henry Adams, Esq., Washington, D. C.
44. House for John Hay, Esq., Washington, D. C.
45. Allegheny County Buildings, consisting of Court-house and Jail, Pittsburgh, Pa.
46. Wholesale Warehouse for Marshall, Field & Co., Chicago, Ill.
47. Armory, Detroit, Mich.
48. Chamber of Commerce, Cincinnati, O.
49. Dwelling-house for J. J. Glessner, Esq., Chicago, Ill.
50. " " B. H. Warder, Esq., Washington, D. C.
51. " " J. J. Glessner, Esq., Chicago, Ill.
52. " " Robert Treat Paine, Esq., Waltham, Mass.
53. " " Prof. E. W. Gurney, Beverly, Mass.
54. " " J. R. Lionberger, Esq., St. Louis, Mo.
55. " " William H. Gratwick, Esq., Buffalo, N. Y.
56. Store on Harrison Avenue, Boston, for F. L. Ames, Esq.
57. Railroad Depot, New London, Conn.
58. House for Prof. Hubert Herkimer, A. R. A., England.

Thomas Wisedell, *b.* in England in 1846, *d.* in New York, July 31, 1884. Educated in the office of Mr. R. J. Withers, of London. Associated with Mr. F. H. Kimball, of New York. Principal works: Madison Square Theatre and the "Casino," both of New York City.

John Wellborn Root, *b.* in Georgia, January 10, 1850, *d.* in Chicago, Ill., January 15, 1891. Entered into partnership with Daniel H. Burnham in 1873, which continued until his death. Mr. Root was the designer of the firm. They designed and executed 77 public buildings, many of them of the first class, and 120 residences. Of their public buildings, the following were, perhaps, the most important: Calumet Club-house, Art Institute, Academy of Fine Arts, Montauk Block, Calumet Building, Rialto Office-building, Insurance Exchange Building, Grannis Block, Phœnix Building, The Rookery, Masonic Building, Women's Temple, First Regiment Armory, all of Chicago; the Mills Block, San Francisco; Midland Hotel, Board of Trade Building, American National Bank Building, of Kansas City. Mr. Root was Secretary of the American Institute of Architects at the time of his death.

Henry O. Avery, *b.* *d.* 1890. Studied at the School of Fine Arts, in Paris. Took an important part in designing the houses of W. K. Vanderbilt and Henry G. Marquand, a prominent member of the Architectural League of

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New York, the Archæological Institute and the Society of American Artists.

Herbert C. Burdett, *b.* in Boston, 1855, *d.* in Buffalo, April 10, 1891. Associated with J. Herbert Marling, as Marling & Burdett, and practised in Buffalo, N. Y. Principal works: the Saturn Club-house and numerous fine residences in Buffalo.

A [PRELIMINARY] LIST OF NOTED ARCHITECTS AND BUILDINGS.

GOVERNMENT BUILDINGS:

United States Capitol, Washington, D. C., Messrs. Hallet, Hadfield, Hoban, Latrobe, Bulfinch, Anderson, Walter, Clark, Architects.
National Museum, Washington, D. C., Cluss & Schulze, Architects.
State, War and Navy Building, Washington, D. C., A. B. Mullett, Architect.
Treasury Building, Washington, D. C., Robert Mills, T. U. Walter, Young, Rogers, and A. B. Mullett, Architects.

U. S. Post-office and Court-house: —
Baltimore, Md., James G. Hill.
Boston, Mass., A. B. Mullett, W. A. Potter.
Chicago, Ill., A. B. Mullett.
Cincinnati, O., A. B. Mullett.
Detroit, Mich., M. E. Bell.
Kansas City, Mo., James G. Hill.
New York, N. Y., A. B. Mullett.
St. Louis, Mo., A. B. Mullett.

STATE CAPITOLS.

Capitol of: —
Colorado at Denver; E. E. Myers & Son, Architects.
Connecticut, at Hartford; R. M. Upjohn, Architect.
Illinois, at Springfield; A. H. Piquenard, Architect.
Indiana, at Indianapolis; Edwin May, Architect.
Iowa, at Des Moines; A. H. Piquenard, Architect.
Georgia, at Milledgeville; —— Edbrook, Architect.
Louisiana, at Baton Rouge; W. A. Freret, Architect.
Maine, at Augusta; Charles Bulfinch, Architect.
Massachusetts, at Boston; Charles Bulfinch; Brigham & Spofford, Architects.
Michigan, at Lansing; E. E. Meyers, Architect.
New York, at Albany; Messrs. Fuller, Eidlitz, and H. H. Richardson, Arch'ts.
Ohio, at Columbus; Henry and William Walter, Architects.
Rhode Island, at Newport; James Munday, Architect.
Tennessee, at Nashville; James Strickland, Architect.
Texas, at Austin; E. E. Meyers & Son, Architects.
Virginia, at Richmond; Thomas Jefferson.

COUNTY BUILDINGS.

Suffolk County Court-house, Boston, Mass., Geo. A. Clough, Architect.
Cook County Court-house, Chicago, Ill., J. J. Egan, Architect.
Arapahoe County Court-house, Denver, Colo., E. E. Myers & Son, Architects.
Jefferson Market Court-house, New York, N. Y., F. C. Withers, Architect.
County Court-house, Omaha, Neb., E. E. Meyers & Son, Architects.
Court-house and Jail, Pittsburgh, Pa., H. H. Richardson, Architect.
Court-house, Providence, R. I., Stone & Carpenter, Architects.

CITY AND TOWN HALLS.

City Hall: —
Albany, N. Y., H. H. Richardson, Architect.
Boston, Mass., Gilman & Bryant, Architects.
New York, N. Y., (1803-1812) John McComb, Architect.
Philadelphia, Pa., (new) John McArthur, Jr., Architect.

Town Hall: —
North Easton, Mass., H. H. Richardson, Architect.

CHURCHES, ETC.

All Saints' Cathedral, Albany, N. Y., R. W. Gibson, Architect.
St. Peter's Episcopal Church, Albany, N. Y., R. M. Upjohn, Architect.
First M. E. Church, Baltimore, Md., McKim, Mead & White, Architects.
Brattle Street Church, Boston, Mass., Gambrill & Richardson, Architects.
Church of the Advent, Boston, Mass., Sturgis & Brigham, Architects.
First Church, Arlington Street, Boston, Mass., Gilman & Bryant, Architects.
First Presbyterian Church, Boston, Mass., R. M. Upjohn, Architect.
Spiritual Temple, Boston, Mass., Hartwell & Richardson, Architects.
Trinity Church, Boston, Mass., Gambrill & Richardson, Architects.
The (new) Old South Church, Boston, Mass., Cummings & Sears, Architects.
Emanuel Baptist Church, Brooklyn, N. Y., Francis H. Kimball, Architect.
Jewish Synagogue, New York State, Buffalo, (Temple Beth Zion) E. A. & W. W. Kent, Architects.
Calvary Presbyterian Church, Cleveland, O., C. F. Schweinfurth, Architect.
St. Stephens Church, Lynn, Mass., Ware & Van Brunt, Architects.
Fifth Avenue Presbyterian Church, New York, N. Y., Carl Pfeiffer, Architect.
Jewish Synagogue, New York, N. Y., L. Eidlitz, Architect.
Madison Avenue M. E. Church, New York, N. Y., R. H. Robertson, Architect.
St. Patrick's R. C. Cathedral, New York, N. Y., Renwick & Sands, Architects.
Trinity Church, New York, N. Y., Richard Upjohn, Architect.
Park Avenue M. E. Church, Philadelphia, Pa., Hazelhurst & Huckel, Arch'ts.
Church of the Messiah, St. Louis, Mo., Peabody & Stearns, Architects.
Church of the Covenant, Washington, D. C., J. C. Cady & Co., Architects.

COLLEGE AND SEMINARY BUILDINGS.

Harvard Medical School, Boston, Mass., Ware & Van Brunt, Architects.
Mass. Institute of Technology (first building), Jonathan Preston, Architect.
Harvard Memorial Hall, Cambridge, Mass., Ware & Van Brunt, Architects.
Hemenway Gymnasium (Harvard College), Peabody & Stearns, Architects.
New Law School (Austin Hall), Cambridge, Mass., H. H. Richardson, Arch't.
Osborn Hall (Yale), New Haven, Conn., Bruce Price, Architect.
Columbia College, New York, N. Y., C. C. Haight, Architect.
Union Theological Seminary, New York, N. Y., Lord & Potter, Architects.
Girard College, Philadelphia, Pa., T. U. Walter, Architect.

LIBRARIES.

New Public Library, Boston, McKim, Mead & White, Architects.
Lenox Library, New York, N. Y., R. M. Hunt, Architect.

THEATRES AND MUSEUMS, ETC.

Museum of Fine Arts, Boston, Mass. { Sturgis & Brigham, Architects. / Sturgis & Cabot, Architects.

Academy of Fine Arts, Chicago, Ill., Burnham & Root, Architects.
The Auditorium Building, Chicago, Ill., Adler & Sullivan, Architects.
Casino Theatre, New York, Kimball & Wisedell, Architects.
Metropolitan Opera-house, New York, J. C. Cady & Co., Architects.
Academy of Music, Philadelphia, Pa., C. Runge, Architect.
Museum of Fine Arts, St. Louis, Mo., Peabody & Stearns, Architects.

CLUB-HOUSES AND LODGE BUILDINGS.

Algonquin Club-house, Boston, Mass., McKim, Mead & White, Architects.
Art-Club Building, Boston, Mass., W. R. Emerson, Architect.
Calumet Club-house, Chicago, Ill., Burnham & Root, Architects.
Masonic Temple, Chicago, Ill., Burnham & Root, Architects.
Women's Temple, Chicago, Ill., Burnham & Root, Architects.
Denver Club-house, Denver, Colo., Varian & Sterner, Architects.
Union League Club-house, New York, Peabody & Stearns, Architects.
Art-Club Building, Philadelphia, Pa., Frank Miles Day, Architect.
Masonic Temple, Philadelphia, Pa., J. H. Windrim, Architect.
Masonic Building, Pittsburgh, Pa., Shepley, Rutan & Coolidge, Architects.

OFFICE-BUILDINGS.

Ames Building, corner Court and Washington Streets, Boston, Shepley, Rutan & Coolidge, Architects.
Fiske Building, Boston, Mass., Peabody & Stearns, Architects.
N. Y. Mutual Life Ins. Co.'s Building, Boston, Peabody & Stearns, Architects.
Board of Trade Building, Chicago, Ill., W. W. Boyington, Architect.
Pullman Building, Chicago, Ill., S. S. Beman, Architect.
The Rookery, Chicago, Ill., Burnham & Root, Architects.
Chamber of Commerce, Cincinnati, O., H. H. Richardson, Architect.
The New York Life Ins. Co.'s Building, Denver, Colo., Andrews, Jacques & Rantoul, Architects.
Board of Trade Building, Kansas City, Burnham & Root, Architects.
New England Building, Kansas City, Bradley, Winslow & Wetherell, Arch'ts.
The New York Life Ins. Co.'s Building, Kansas City, McKim, Mead & White, Architects.
N. Y. Mutual Life Ins. Co.'s Building, New York, C. W. Clinton, Architect.
Produce Exchange, New York, G. B. Post, Architect.
United Bank Building, New York, Peabody & Stearns, Architects.
D. O. Mills Block, San Francisco, Cal., Burnham & Root, Architects.

HOTELS AND APARTMENT-HOUSES.

Revere House, Boston, William Washburn, Architect.
Tremont House, Boston, William Washburn, Architect.
The Hollenden Hotel, Cleveland, O., George F. Hammond, Architect.
Midland Hotel, Kansas City, Mo., Burnham & Root, Architects.
Aurelia Apartment-house, Fifth Avenue, New York, J. C. Cady & Co., Arch'ts.
Fifth Avenue Hotel, Fifth Avenue, New York, William Washburn, Architect.
The Hotel Imperial, Broadway and Thirty-second Street, New York, McKim, Mead & White, Architects.
The Yosemite, Park Avenue, New York, McKim, Mead & White, Architects.
Victoria Hotel, New York, William Washburn, Architect.
Hotel Ontario, Salt Lake City, Adler & Sullivan, Architects.

RESIDENCES.

House of: —
Ross Winans, Baltimore, Md., McKim, Mead & White, Architects.
F. L. Ames, Boston, Mass., Sturgis & Brigham, Architects.
J. F. Andrew, Boston, Mass., McKim, Mead & White, Architects.
Cornelius Vanderbilt, New York, G. B. Post, Architect.
W. H. Vanderbilt, New York, Herter Bros. and Atwood & Snook, Architects.
W. K. Vanderbilt, New York, R. M. Hunt, Architect.
Louis C. Tiffany, New York, McKim, Mead & White, Architects.
Houses of Henry Villard, New York, McKim, Mead & White, Architects.

MISCELLANEOUS.

Boston & Providence R. R. Station, Boston, Peabody & Stearns, Architects.
Fifth Avenue Riding School, New York, Carl Pfeiffer, Architect.
Broad Street R. R. Station, Philadelphia, Pa., Wilson Bros. & Co., Architects.
Central R. R. Station, Providence, R. I., T. A. Tefft, Architect.

TRADE SURVEYS

RAILWAY managers are prosecuting their policy for the improvement of their respective properties in a manner which is gratifying to those who are supplying material and equipments. Leading railway authorities have recently stated that at no time has there been as much activity in the improvement of road-beds, and in furnishing equipments for the accommodation of freight and passenger traffic. Locomotive-builders attest the correctness of this statement: during the past thirty days, more orders have been placed with locomotive-builders than during the preceding three months. Iron-makers who furnish material for car-builders state that they have filled more orders for car-iron than for a very long time past. Car-builders themselves are very busy indeed. The manufacturers of equipments, such as wheels, axles, the manufacturers of lumber for car use and all others engaged in the manufacture of equipments are now, after several months of irregular work, crowded with engagements, which will probably keep them busy until late in the autumn. The statistics of railway traffic and earnings substantiate these statements. As earnings improve, operating expenses are permitted to increase. As stated some months ago in this column, it is the policy of railway managers to steadily improve their properties, and this policy is being rigorously pursued, even to the dissatisfaction of short-sighted stockholders. Referring for a moment to the mining industry of the United States, it is to be said that more coal is now being mined than at any time in the country's history. The anthracite output exceeds that of last year to this date to the extent of two million tons. The bituminous output is also ahead of last year. Manufacturing demand is absorbing the entire production. The opening of mines in the West is to be noted, and the demand for fuel in the South is leading to the more vigorous prosecution of mining in the Southern States. In regard to lumber, a less favorable report can be given. Last year, extraordinary activity was displayed in the erection of saw and planing mills, especially in the Southern States. In anticipation of an extraordinary demand for all kinds of lumber, this year large stocks were manufactured, and the rather sluggish distribution for the past three months is leading to some complaint, and may result in a lower range of prices for both hard and soft woods before the season is over. The financial situation has apparently improved, but it is to be doubted whether the improvement is genuine. Bank failures here and there still keep confidence unsettled. The decrease in loans in large financial centres is not to be passed over slightingly. The heavy exports of gold in themselves are not fraught with as much danger as surface observers imagine; a favorable point to be noticed is the promptness with which loans from Western States are returned. Another favorable point is that loans are being promptly made on nearly all kinds of Western securities; the West will pay if it can; it is becoming yearly more able to pay, and to carry a heavier load of indebtedness. The political agitations there, especially with reference to a third-party movement, certainly aim at bringing about an increased supply of currency, but this does not point, even remotely, to the possibility of the repudiation of debts. This agitation can be safely continued for years to come without doing any harm; it will probably result in some sort of a compromise with reference to an increased silver coinage, which can be granted without serious results to the general financial interests, because of the recognized need of a greater supply of money. Building operations are of a limited character in nearly all cities and towns; in the rural districts, more building is going on than last year, but it does not appear in the general reports made. Farmers, cotton-planters, miners, lumbermen and all those interests scattered throughout the country outside of cities and towns are and probably will continue to be as large buyers of material, equipments and supplies as they were last year. This factor is ignored by those who write the financial and commercial reports in the larger cities. In other words, the actual consumptive demand, when we come to count up the year's business, will be found to be very little behind what it has been in years past. The low prices of commodities are favorable to a steady consumption and demand. The low price of land throughout the country is also favorable to expansion; speculation is doing very little harm. Values are mainly based upon cost. There is no real estate boom, and very little room for any. The great mass of the people of the country are employed, and at good wages. Strikes are keeping fewer people unemployed than for many years.

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JUNE 13, 1891.

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MRS. CANDACE WHEELER, of New York, still clings to her favorite idea, of having an apartment-house erected exclusively for women, of whom many thousands now live alone in the city, rather uncomfortably, for want of suitable accommodation. The late A. T. Stewart, who understood the importance of some such provision, built an immense structure for the purpose, but, for some reason, it was not popular, and, after his death, it was devoted to other objects. Mrs. Wheeler has gone so far as to lay out a scheme for a fireproof building, to cost about four hundred thousand dollars, exclusive of the land. Such a building would comprise two hundred apartments, including from one to five rooms each, with baths, some of the apartments having kitchens, and others not. On the first floor would be a restaurant, with stores, and the second story would be occupied by rooms for transient guests. It seems that there are persons sufficiently interested in the scheme to provide the money for carrying it out, if they can be sure of a return on their capital large enough to pay them reasonable interest, with a proper margin for repairs, depreciation, and changes of tenants. Such a return Mrs. Wheeler appears to be hardly able to promise. She is, naturally, anxious that the rents should be low, as comparatively few of the women for whom it is intended earn enough to pay a large rent, but she is quite sure that the two hundred apartments will rent steadily for thirty-two thousand dollars a year. Besides this income, the owner will have the profit from the restaurant, the rent of the stores on the first story, and of the rooms for transient guests on the second story. We should be very sorry to throw cold water on the plan, but we imagine that people who have money to invest will need to be tempted with rosier prospects than this before the plan can be carried out as a business operation. It seems to us that skilful planning will be necessary to get all the accommodation proposed, in a fireproof building, for four hundred thousand dollars, exclusive of the cost of the land, but, supposing this to be possible, the land, in any situation where stores could be rented, or rooms let to transient guests, would cost at least a hundred thousand more, making the total investment half a million dollars. The income from the apartments, at Mrs. Wheeler's calculation, will be a little over six per cent, gross, on this investment, and, to cover loss of rent, cost of heating-power, service, taxes, insurance and depreciation, with the large allowance which must be made for the cost of furniture and service for the portion to be occupied as a transient hotel, most persons would say that the gross rent of the first and second stories ought to be, at the very least, thirty thousand dollars more. The net income from a restaurant frequented only by women living in the building would be so small that it might safely be neglected, and, to make up the necessary amount, the stores, if of the ordinary size, would have to be rented for about three thousand dollars a year each, and the rooms in the second story must be constantly occupied, at about a dollar and a half a day. Whether all these conditions would be likely to be fulfilled is very problematical.

IT seems to us that the scheme is too large and gloomy to attract women, or to be financially successful. In the first place, unless the building is to be erected on such costly land that it must be made seven or eight stories high, there is no need of making it fireproof, and, as a small contribution to the object in view, which we should all like to see attained, we will suggest that what seems to us a pleasanter and much cheaper scheme would be to construct a sort of aggregation of little apartment-houses, with separate outside doors, arranged something like the college dormitories at Oxford, and, perhaps, placed in the Oxford manner, so as to surround a quadrangle, which could be made into a pretty garden, The sections should be separated by brick walls, so that fire could not spread from one to another, and each section could then, with perfect safety, be built in the ordinary manner. With four stories, and two front and two rear rooms on each story, each section would accommodate sixteen tenants. Two bathrooms would answer for each section, and there would be ample storage room in the basement for trunks, firewood and extra furniture, and space for a kitchen if desired, and there are plenty of pleasant and accessible situations in New York where such a building could be erected, and the sections rented, at a good profit, for a thousand dollars a year each, or even less, including a proportionate part of the rent of a common restaurant, which would occupy the first story of one or two of the sections, and the necessary steam heat. To our mind, the little households of sixteen friends, separated entirely from their neighbor's pianos and visitors, would be much pleasanter, particularly for women, than a house with four or five hundred tenants, with its never-ending movement and noise, and, as there would be no stores to seek tenants, land on a cross street would be perfectly available, and much cheaper than on a main avenue.

THE *Inland Architect* has the merit of suggesting that the Chicago Exhibition ought to include an Architectural department, in which should be systematically shown the development of American architecture, as well as the historical progress of by-gone styles, and the present work of the civilized countries of the world; with this, it thinks, should be connected an exhibition of modern building appliances and modes of construction. The Chicago Chapter of the Institute of Architects has taken up this admirable scheme, and has secured the approval of the Director-general of the Exhibition, so that it seems altogether probable that the plan will be carried out. If so, it is much to be hoped that the profession throughout the country will work earnestly for its success. No such opportunity for showing the value of American architects as a professional class, and of their work, is likely to occur again for many years, and it should be taken the fullest advantage of. The earliest opportunity should be seized, also, for securing an adequate representation of foreign architecture, which can only be had by earnest personal solicitation, but which is very necessary to complete the interest of the whole. If we may make a little addition to the *Inland Architect's* plan, we would suggest that it would accord well with the present idea of the correlation of the arts, and would add immensely to the general interest of the department, to show furniture, draperies, interior decoration and bric-à-brac generally with the architecture, as is done in the League Exhibitions in New York. Many of our readers will remember that perhaps the most attractive part of the Philadelphia Exhibition was the collection of little furnished rooms, contributed by various manufacturers of furniture and draperies. Such exhibits as these properly belong in an architectural department, and might, with great advantage to all parties, be subject to the approval of a committee of

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architects, who would see that the rooms were not overloaded, and that the architecture and the furnishings mutually enhanced each other.

AT the time of the passage of the McKinley bill, we estimated that the effect of the new tariff would be to increase slightly the cost of the humbler classes of buildings, leaving that of the most expensive structures unchanged, or possibly lower, in case of buildings consuming a large amount of iron, the duty on which is somewhat reduced by the new tariff. There are, however, various circumstances besides the tariff to be considered in regulating business affairs, and it may, we think, be regarded as certain that the average cost of cheap dwellings is no greater for a given amount of accommodation this year than last, and is possibly a little less. Some of the materials, such as lime, are higher, but the principal material of all, lumber, is lower this year than last by an average of perhaps five per cent. The change is not due to any tariff laws, for the old tariff, although a new one is provided for under certain contingencies, still applies to most of the stock used in house-building, but to the lack of demand, which forces dealers to make sacrifices in order to sell their goods. Whether inactivity in building is general throughout the country we cannot say, but it must be very widespread. In Boston, for the first five months of the year, the number of permits issued from the Department of Buildings was only one hundred and thirty-seven, while last year the number, during the same period, was two hundred and seven; yet last year was considered a very poor year by contractors. Moreover, the buildings of the present season in Boston are, as an average, smaller than those of last year, so that, although the estimated cost is not given in the files of the Department, it is probable that the amount of building business in the city this season, so far, is not more than one-half of what it was last year. Naturally, the reduction to one-half of a business by which so many people live as that of building causes inconvenience throughout a wide circle of mechanics and dealers, and persons dependent upon them for custom or employment. According to the daily papers, the depression is seriously felt in Maine, the source of the greater part of the building timber used in New England. One account says that "the lumber trade has not been so blue since the first years of the war," and adds that a very large amount has been cut, but is left in the mill-ponds, as there are no orders for it. In New York, where the antics of the walking-delegates have greatly injured the building business within the last two or three years, the situation appears to be hardly more cheerful. One of the great stone quarries at Portland, at the mouth of the Connecticut River, has put its men on half-time on account of the lack of orders, and the other large quarries are expected to do the same within a few days. As Portland stone is a staple material in Connecticut and New York, this indicates a singular slackness in building during what is usually the busiest season.

WE are requested to mention that the Department of Architecture of the Brooklyn Institute, of which Mr. Louis De Coppet Berg is now President, proposes next autumn to open a school for draughtsmen, in which men already engaged in offices can acquire the theoretical knowledge necessary to complete their architectural training. Every one who has had any experience in architectural schools knows that there is a serious demand for such a school, but, so far, the demand has not been exactly met. Some of the great architectural schools receive special students, who are allowed to take the portions of the course in which they feel themselves deficient, but, as a rule, these special students, not being eligible for degrees or prizes, have not much incentive to make the best use of their time, and the course, at best, is not prepared with reference to them, but to the regular students only. Under Mr. Berg's skilful direction, we may be sure that the new draughtsmen's school will not suffer from any of these imperfections. It will be a very different affair, we are assured, from the evening drawing-schools, which do not pretend to do more than teach people whose hands have been accustomed to wielding the mallet or the shovel, how to manage a pencil with what an architectural draughtsman regards as the most rudimentary dexterity, and the men who enter it will have work offered them which will fully exercise their powers; but it will be the work which they know that they need, and most of them will be glad of the opportunity to do their best.

IT is gratifying to learn that the great Hudson River Tunnel, the longest submarine tunnel in the world, will be opened through from Jersey City to New York in about six weeks. Of course, it will be a long time yet before the railway tracks are in place through it, and the twin tunnel must be completed before much traffic can be accommodated, but the fact of the opening of communication under the river is a very important one. It will be remembered that this great enterprise passed into English hands a year or more ago, and that the work has been prosecuted since under the general direction of English engineers, who seem to have shown great efficiency. The total length of the tunnel is more than two miles and a half, of which a little more than a mile is under the bed of the river. It is settled that electrical locomotives will be used to haul cars through the tunnel, and before next winter it is expected that trains will pass through regularly in one direction, at least.

THE competition for designs for the new silver coins of the United States which closed last week resulted in nothing. As usually happens, the protest of the most distinguished sculptors in the country was too late to be of any use, and the competition therefore was restricted to artists of the second rate, as very few professional artists nowadays will have anything to do with competitions where their designs are not to be judged by an expert jury. The Director of the Mint, however, deferred so far to the opinion expressed in the sculptors' letter to him as to select Mr. Augustus St. Gaudens, with Mr. Henry Mitchell of Boston, and Mr. C. E. Barber, the engraver to the Mint, to advise with him upon the selection. This intelligent jury found their task made easy by the inferiority of all the designs submitted which compelled their unanimous rejection.

AN Episcopal Cathedral is to be built in Washington. A considerable sum of money has already been presented for the purpose, and it is supposed that a donation of the necessary land has already been arranged. The condition of Washington, with its brilliant, but constantly changing society, is a peculiar one, and a cathedral church would have to be adapted to it; but the difficulties of the problem will only add to its interest.

ARCHITECTS, like other people, will undoubtedly be glad to hear of a way by which they can ascertain, by the inspection of their morning cup of coffee, what the weather is going to be for the day. According to the bright little Spanish building journal, the *Gaceta de Obras Publicas*, a cup of pure coffee, with the addition of a lump of sugar, forms an excellent barometer. The sugar should be put into the coffee without stirring, and, a moment afterward, a quantity of bubbles, due to the air contained in the sugar, will be seen to rise to the surface of the liquid. If the bubbles collect in the middle of the cup, the weather will be fair; if, on the contrary, they leave the centre, and adhere to the sides of the cup, forming a ring of bubbles, with a clear space in the middle, there will be rain; if they scatter themselves indifferently on the surface, the weather will be variable, while a cluster of bubbles at one side of the cup indicates rain. No one, apparently, has attempted to explain the connection between the behavior of the bubbles and atmospheric conditions, but it is said that the indications of the coffee-cup barometer generally agree with those of a mercurial barometer placed near by.

OUR readers will remember the invention of the brothers Mannesmann, by which tubes of soft steel are drawn directly from a solid ingot, the outer portion of which is forced over a mandril, which holds the central portion in place. The operation of forcing the outer part of the metal over the rest is performed by rolling cones, or frustums, which give the finished tube a spiral fibre, adding much to its strength. In fact, the Mannesmann tubes are much stronger than any welded pipes, and they are coming rapidly into use. The German military officials, always quick to adopt improvements, have already modified the manufacture of army rifles, so as to employ Mannesmann tubes for the barrels, and all the new magazine rifles for army use are made in this way. Larger and heavier tubes of the same sort are employed for the lining of cannon both in Germany and England. A still more curious use is made of them for military purposes in the former country, where the lances of the cavalry are now fitted with shafts of Mannesmann steel tubing in place of wood. The hollow steel shaft is lighter, stiffer and stronger than the wooden one, and, of course, much less liable to accidents in use.

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SPANISH ARCHITECTURE.[1] — III.

POINTED STYLE.

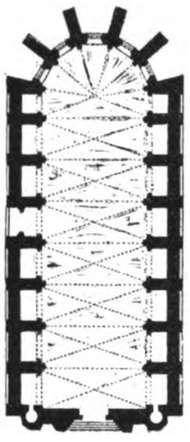

Fig. 11. Santa Maria del Pi, Barcelona.

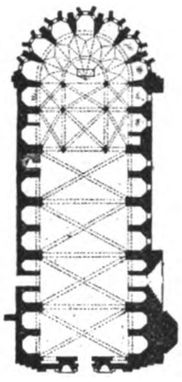

Fig. 12. Cathedral of Gerona.

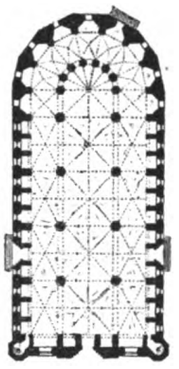

Fig. 13. Santa Maria del Mar.

THE continuous warfare in which the Christians of Spain were engaged from the moment when they undertook to reconquer the country from the Arabs was not conducive to the development of the arts. Frequently, therefore, the Spaniards turned to France, not only for their inspirations, but also for their models and perhaps even, from the thirteenth century, for their architects. So from the outset, the Pointed style in Spain exhibited the elements characterizing it in France. The decorations are the same, the spirit of the sculpture and statuary is identical and, in the productions of the goldsmith's art, as well as in works of inferior importance (tombs, sarcophagi) and in furniture, the French technique and and ornamentation are clearly discernible. In the plans of the churches, the influence of the Aquitanian school is at once recognized, as in Santa Maria del Pi, at Barcelona (Figure 11), in the cathedral of Gerona (Figure 12) and even in the three-aisled edifices, such as Santa Maria del Mar (Figure 13). Here are the same interior buttresses supporting the nave [old part of the Cathedral of Toulouse, churches of Montpezat, Carcassonne and Moissac] which have been characteristic features

Fig. 14. Count of Superunda's Palace, Avila.

of the architecture of southern and southwestern France since the twelfth century, — a fact fully accounted for by the constant intercourse maintained between Languedoc, Gascony and Spain.

Civil architecture developed at this period, but it was hardly until the fifteenth century that it began to be of much interest; the palaces, the Exchanges (*lonjas*) of Barcelona and Valencia and the seigneurial mansions take on more importance; we will examine a few of these here.

The portal of the house of St. Hermandad at Toledo, furnishes a typical example of the style of these constructions. The façade, which runs off from the main façade, on a small square, comprises nothing but the portal itself; this is characterized by two powerful shafts supporting statues and spanning both the ground floor and first story. The whole is surmounted by a projecting roof with exposed rafters. The rectangular door is studded with heavy nails similar to those seen in Arabian doors. The lintel, which is destitute of ornamentation, bears up huge escutcheons, and above these opens a rectangular, grated window; the tympanum of the pointed arch, framing in all the upper portion of this *ensemble* is adorned with a spread eagle, which serves as a support to the arms of the kingdom; there are emblems on either side of the window, — a yoke and a sheaf. The architecture of the seigneurial dwellings, exemplified in the Count of Superunda's palace at Avila (Figure 14), is often full of energy and even brutality. As the illustration shows, the great arch of enormous voussoirs imparts a peculiar aspect of strength to this entrance; the decorative motives, the heavy, luxurious mouldings about the window and

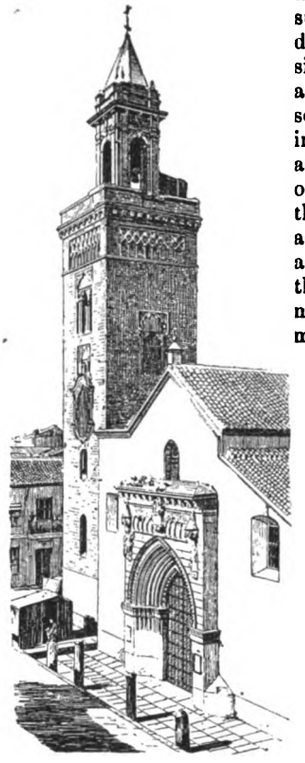

Fig. 15. San Marcos, Seville.

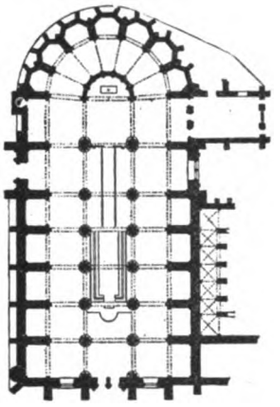

Fig. 16. Cathedral of Segovia.

door, the large escutcheons bearing the arms of the proprietor, give an air of grandeur to the edifice; the same features also appear in the Casa de los Momos at Zamora, another structure of the same period. In religious architecture we see the perpetuation of French influence; and, though in the church of San Marcos at Seville (Figure 15), for example, the Pointed portal departs somewhat from French principles; this may be attributed to Arabian influence which, at the time, still predominated in Toledo, and which was often such as to make the transition between the Mudejar style and contemporary Pointed art almost imperceptible; nearly everywhere the impress of the arts of the northeast can be detected. The plan of the Cathedral of Segovia (Figure 16) includes the interior buttresses referred to above. The enclosed *trascora*, the elongated choir, the rows of stalls (*silleria*) so characteristic of the Spanish rite, appear here in all their exaggeration, occupying nearly all of

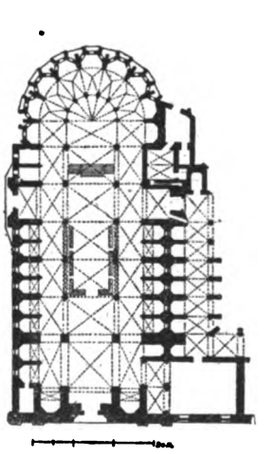

Fig. 18. Cathedral of Barcelona.

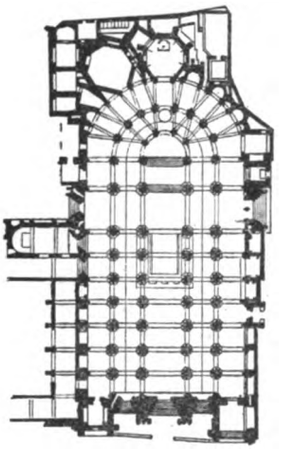

Fig. 19. Cathedral of Toledo.

the nave; the cloister, which belongs to the fifteenth century (Figure 17), is very beautiful, and is in a perfect state of preservation. The decoration (fifteenth century, as at Valladolid and Burgos) is often quite heavy, for in the elements of

[1] From the French of H. Saladin, in Planat's "*Encyclopédie de l'Architecture et de la Construction.*" Continued from page 144, No. 806.

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the mullion and balustrades the semicircular arch is more frequently employed than the broken.

The Cathedral of Barcelona (Figure 18) also has of a boldness which is well indicated in the plan by the slenderness of the supports. Along with this slenderness, dry, harsh forms occur, which give the edifice a singular resemblance

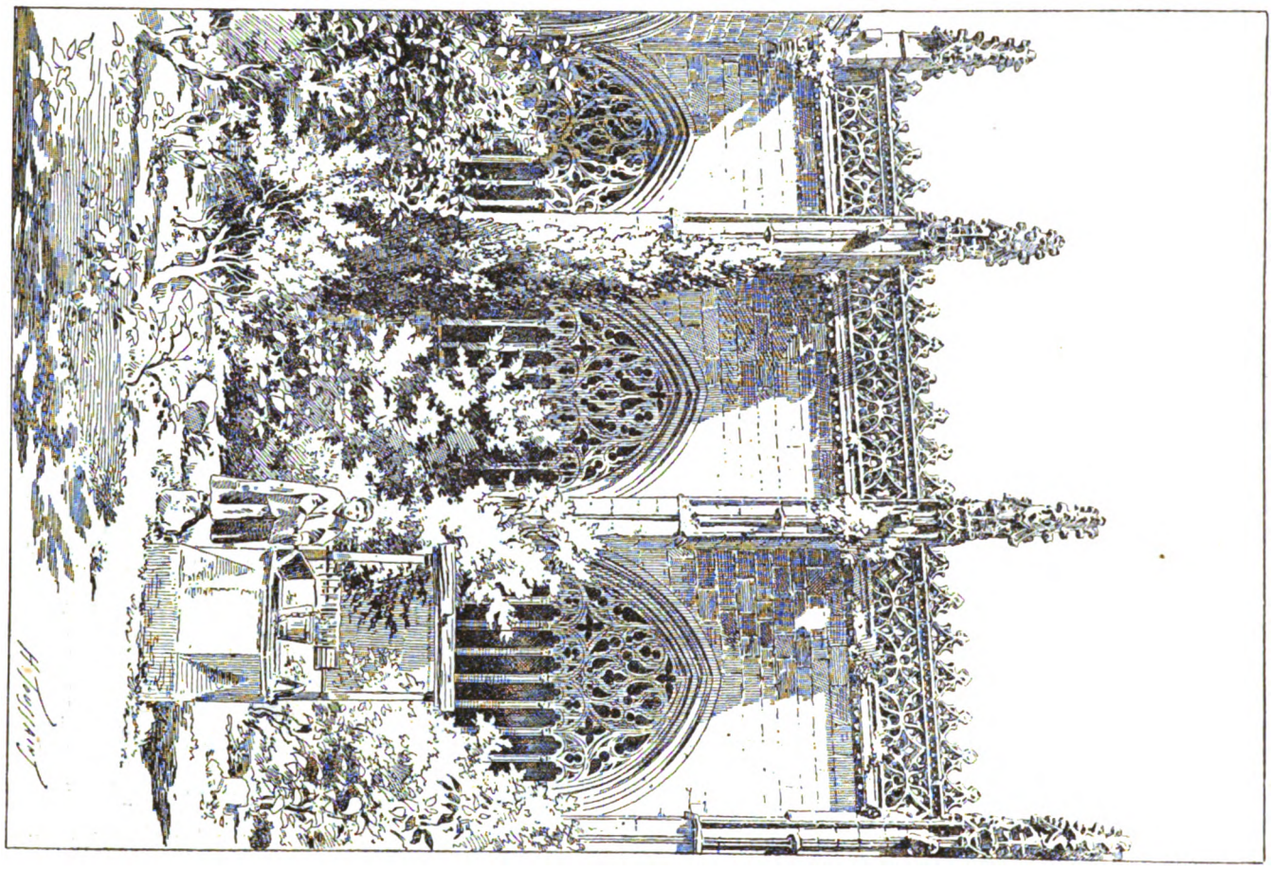

Fig. 17. Cloister of the Cathedral of Segovia.

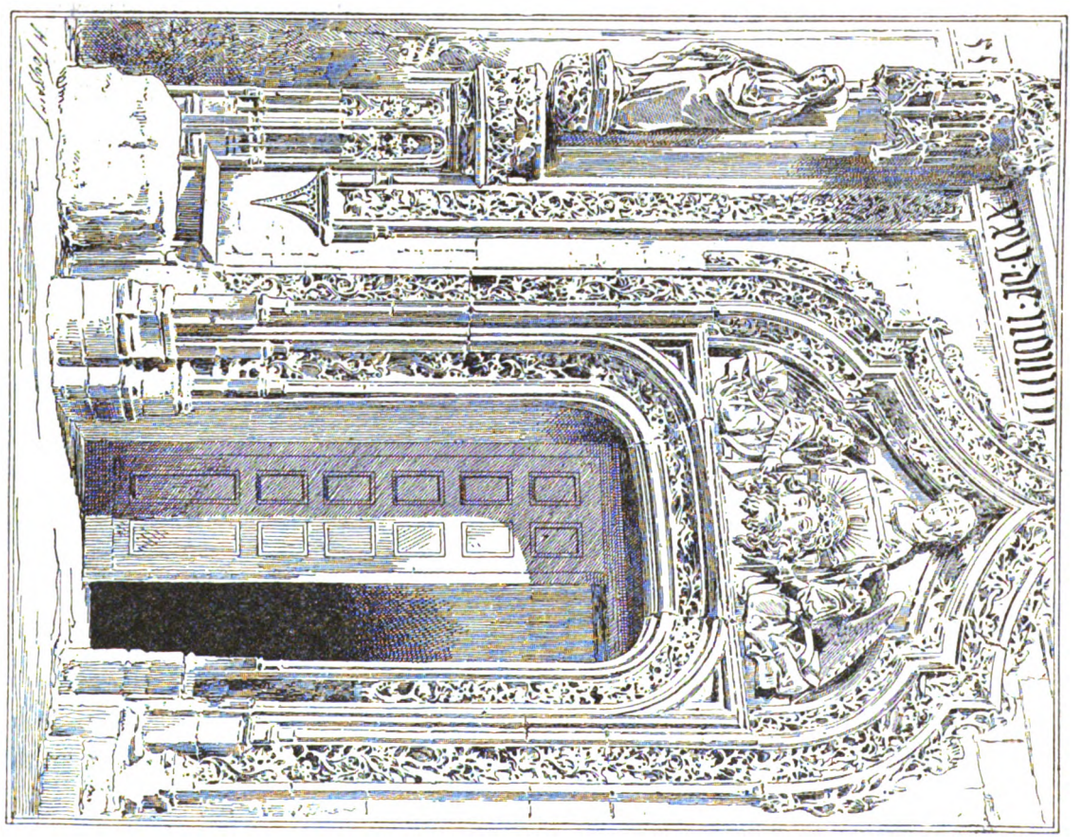

Fig. 22. Doorway from the Cloister of San Juan de los Reyes, Toledo.

interior buttresses, which form deep lateral chapels; but its style is nearer that of the north, and the resistant properties of the materials used in its construction admit to the structures reared by the Flemish and German architects in the fifteenth century. This likeness is striking in the door of the Pieta. On the tympanum, the sculpturing of which is

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remarkably well preserved, the figures are stiffly draped in ample folds, and the whole produces the impression of a church of Bruges or Cologne rather than of a Spanish monument.

The Cathedral of Toledo is, on the contrary, thoroughly French in its ground plan (Figure 19), which is evidently patterned after the plans of the cathedrals of Paris and Bourges. One part of it belongs to the fourteenth century; the other is of the fifteenth, and is vaulted in the Angevine fashion, that is

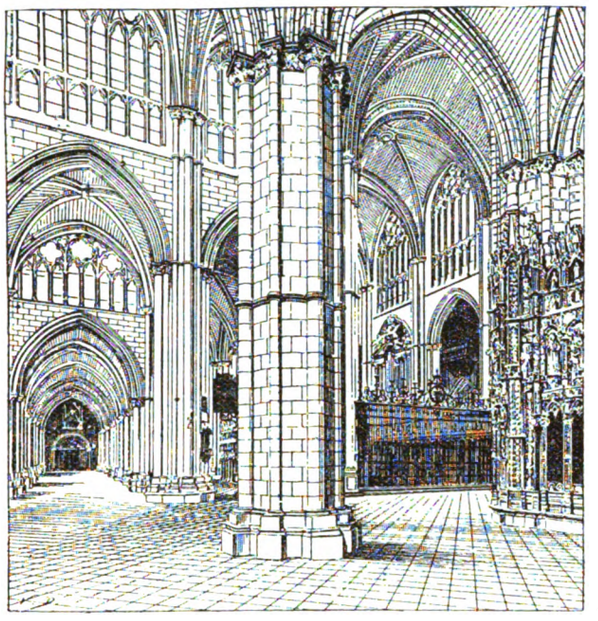

Fig. 20. Interior of Toledo Cathedral.

to say, in accordance with the principle of the dome rather than of the groined vault. The five lofty aisles constitute a magnificent whole. The choir (Figure 20) is developed on both sides of the transept and is terminated by a magnificent reredos in carved wood, painted and gilded; on the right is the tomb of the kings, on the left, that of Cardinal Mendozo, and on each side of the enclosed portion of the nave are wooden stalls of remarkable richness, which give the edifice a peculiarly grand appearance.

San Juan de los Reyes (1476), also at Toledo, built by the architect Juan of Guas, to receive the remains of the royal family, offers an example of the style of the north imported full-fledged. The vaulting of the church (Figure 21) exhibits all the most intricate complexities of *lierne* and *tierceron* ribs; the vaults of the cloister and the chapter-house are traced after the same model. The interior composition of the church displays great originality. The false transept forming a choir is surmounted by an octagonal lantern, the angles of which are filled-in by squinches with radiating ribs, similar to the shell-shaped squinches employed by the Arabs at Kairwan in the

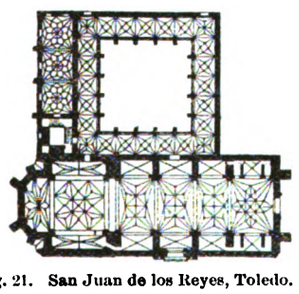

Fig. 21. San Juan de los Reyes, Toledo.

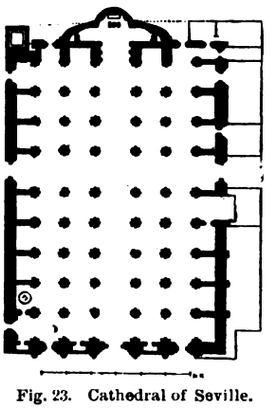

Fig. 23. Cathedral of Seville.

mosque of Okba. The interior balconies, the wonderful wealth of sculpture, corbellings chiselled with extreme care and broad decorative inscriptions inspired by analogous Arabian embellishments, make this chapel a real gem of architecture; but in style it is Flemish or German; the accompanying view of the cloister doorway (Figure 22) gives an idea of the edifice. Is it not a Flemish or German construction, with its somewhat harsh mouldings, its deep-cut ornamentation and its tympanum adorned with a head of Christ, surrounded by little winged angels that seem to have stepped out of a painting by Memling or Albert Dürer?

The Cathedral of Burgos, which is one of the finest in all Spain, has a thoroughly French aspect. The enrichment of the spires and façades — the edifice, begun in 1221, was not completed until 1571 — offers many points of resemblance to the Pointed architecture of Bordeaux. Yet the peculiar Spanish interior disposition, the great altar-screens, the sumptuous chapels, the choir walls, give it an essentially Spanish character. The interior is somewhat massive; the transept pillars supporting the lantern, or rather the central tower, are cylindrical and adorned in the upper part with statues placed in niches. The octagonal lantern borne on shell-shaped squinches, which are flatter than those of San Juan de los Reyes, rests upon a basement on which is a broad decorative inscription surmounted by a frieze of shields; next come the windows. Above these spreads an octagonal vault with *lierne* and *tierceron* ribs on a star plan, comprising two concentric stars about an octagonal *oculus* with ribs converging to its centre. The spaces between the ribs, instead of being filled-in with plain stonework, are enriched with openwork carvings of most varied designs. We are reminded of the

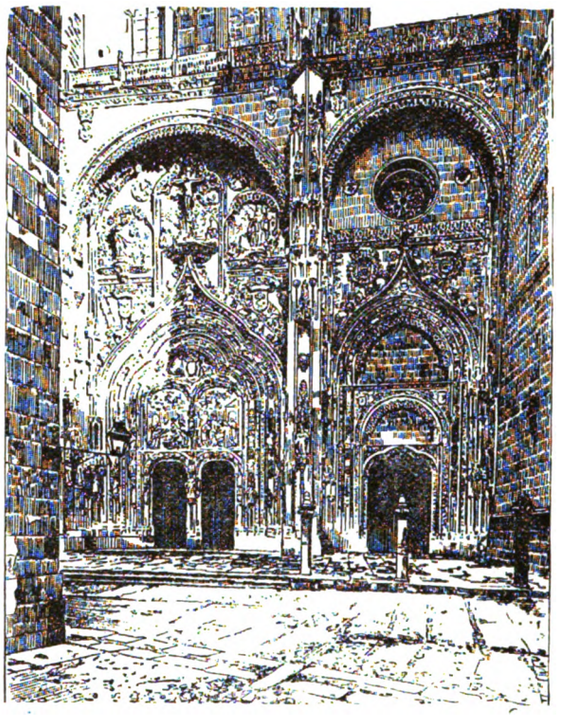

Fig. 25. Portal of the Salamanca Cathedral.

stalactite form of the cupolas of Arabo-Spanish art, of which this church certainly offers an interesting adaptation to the Pointed style. The vaults of the church itself also have *lierne* and *tierceron* ribs, which are sometimes rectilinear, sometimes curvilinear; at the springing they display a certain analogy to the English vaults preceding the conoid vaults with curvilinear generatrices, as seen, for example, in Westminster and Peterborough.

The exterior of the central tower is very ornate; the story containing the windows is embellished with projecting balustrades which completely encircle it, passing even around the buttresses. The top is flat and surrounded by a rich balustrade, at the angles of which rise lofty pinnacles surmounting the buttresses. The horizontal line of the balustrades is broken at the centre of each side by an equestrian or a standing figure. Like the French abbeys of the Middle Ages or the great sixteenth-century mosques at Constantinople, the cathedrals of Burgos and Toledo are surrounded by cloisters, libraries, sacristies, chapter-houses and episcopal palaces, forming, as it were, religious cities which are still almost complete.

In the Capilla de los Veles at the Cathedral of Murcia, all the interior sculptural decoration is in a pronounced German-Gothic style; the ornamentation of the mullions and of the niches and arches exhibit the twisted moulding with cylindrical section which is so characteristic of the German-Gothic; we

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find also the curved-back gables of the Lorranian Gothic. The exterior is, on the contrary, wholly Spanish, with its cornices

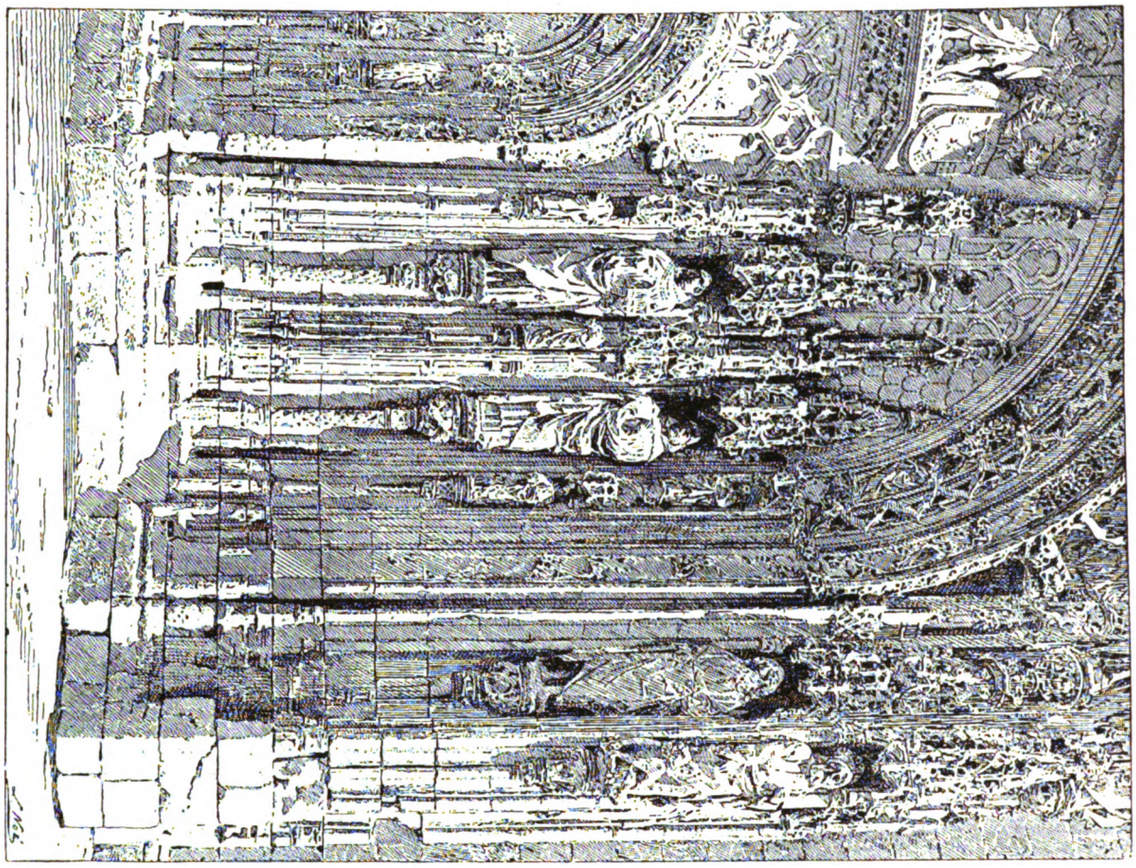

Fig. 24. Façade Portal of San Pablo, Valladolid.

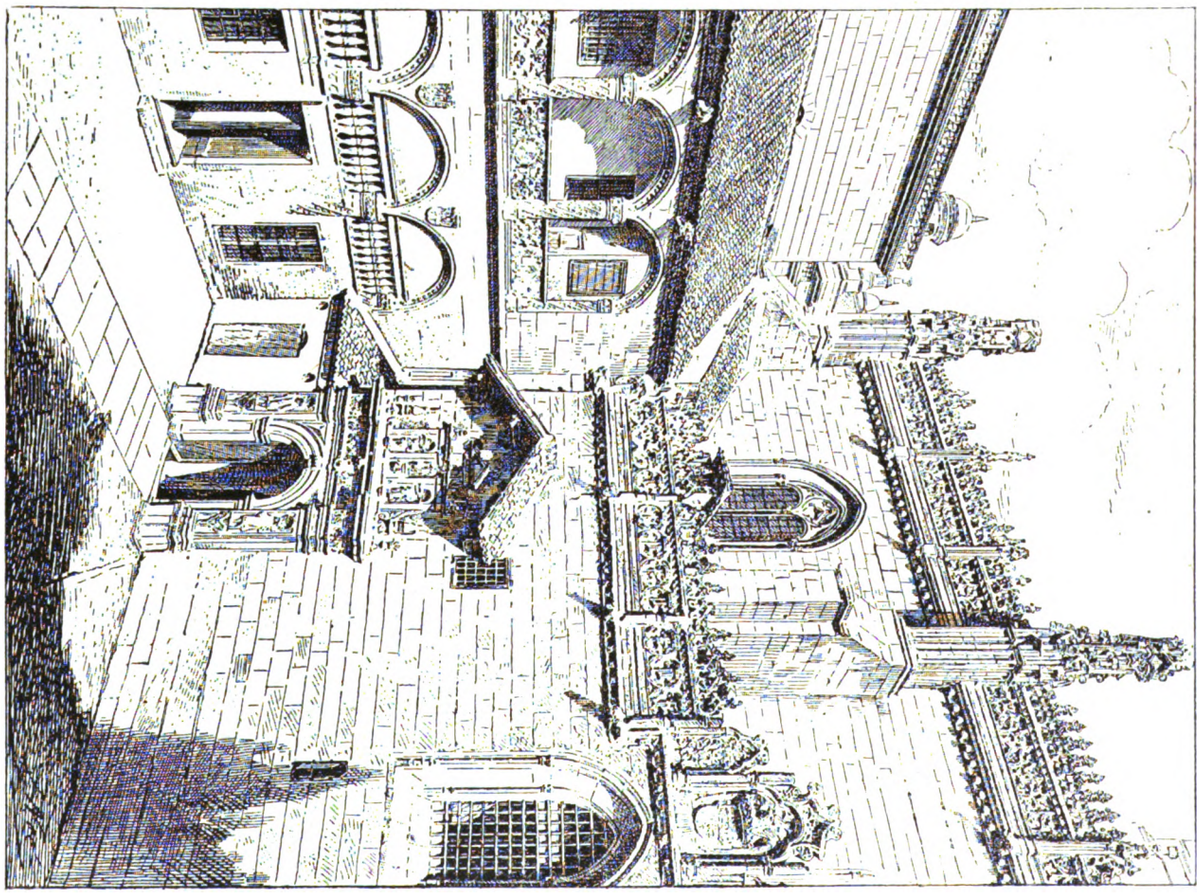

Fig. 25. Royal Chapel in the Cathedral of Granada.

carved to imitate heavy chains, and its disproportioned escutcheons forming rich decorative points on the façade.

This German influence is attributable to the architects John and Simon of Cologne, who were summoned to Spain by the illustrious prelate, Don Alonso of Carthegena. They constructed the Chartreuse at Miraflores, near Burgos (1442), in which are the tombs of the founder John II and his queen. These tombs are of wondrous richness and, singularly enough, are on a star plan. Still other Spanish architects of the fifteenth century are known; Velasco, architect of the Capilla del

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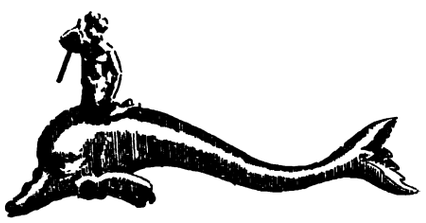
Condestable, at Burgos; Anequin de Egas, Guillermo Sagrera, Guillermo Villasolar; Juan of Guas, architect of San Juan de los Reyes; Pedro Compte, Macias Carpintero and Pedro Gumiel. Many of them not only executed monuments in the Pointed style, but they frequently, and almost simultaneously, employed the Plateresque. Among the remarkable edifices of the Pointed period, we should also cite the cloister of Montserrat (1476); the Cathedral of Seville (Figure 23) whose five-aisled plan has an Arabian aspect, and may, in fact, be said to be almost that of a mosque, with its columns set in quincunx order; the church of the Hospital del Rey, at Burgos; the chapel of San Iago, at Santa Maria de Alcala de Henares; the church of San Gregorio at Valladolid, founded by Don Alonso of Burgos, archbishop of Palencia; and San Pablo at Valladolid (Figure 24). This last is also a northern work; the portals are so enriched with deeply chiselled and ornate sculpture as to suggest wood carving rather than stonework; the lack of proportion is emphasized by the juxtaposition of statues of different sizes. This construction is one of the most interesting illustrations of the rapid decadence of ogival art occasioned by the exaggerated complexity which the fifteenth-century artists introduced into their compositions; this fact comes out clearly in the German School; but here, where the Flamboyant style was transplanted without having passed through the imperceptible transitional changes of the different periods of Pointed art, these overloaded structures are executed with still less judgment than in Germany; in the portal of the Cathedral of Salamanca (Figure 25), for example, the intricacy and exaggeration of the enrichment make it all the more offensive to the eye.

The church of Villena, with its twisted columns and lierne-ribbed vaulting, recalls the Exchange of Valencia. We close our long list of Pointed structures in Spain with the royal chapel in the Cathedral of Granada (Figure 26); the balustrades, in open stonework, although somewhat heavily burdened with decorations are broadly and richly executed.

(To be continued.)

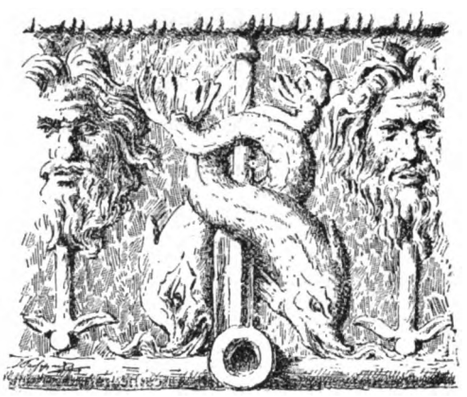
THE DOLPHIN IN ORNAMENTATION.[1]—I.



Bronze antique.

AMONG those aquatic creatures or animals very often used as models and types for the graceful creations of the ornamentists, none is so well known and so carefully preserved as the dolphin. Especially was he dear to the poets, being consecrated to Neptune and Apollo. However, this happy circumstance had nothing to do with the physical or moral advantages of this fish, for they are far from attractive. Through modern science he is presented to us in the most doleful aspect. The naturalists compel us to believe, nowadays, that the dolphin has none of the godlike qualities attributed to him in times of old, and which were transmitted to us from century to century in the legendary accounts of ancient authors. To these naturalists, he is a vulgar, common and insignificant mammifer of the great family of the ordinary cetacea; he is a blower and as such has given the name to a species, the delphini . . . nothing more.

Here are the principal characteristics of these animals, of which there are several species: the body fusiform, that is, tapering towards the tail; the jaws set with common and generally conic teeth; the gills (through which they blow out the water they have breathed) have but one aperture, at the top of the head. Moreover, some dolphins (only those living in countries where they are noticed and hold the same rank they occupy in the mythologies) have a very large cranium and a voluminous brain. From this fact, great intellectual faculties were attributed to them. Thus the dolphin, with his waving, playful and quick motions, was, according to the ancients, considered the model of gentleness; an intelligent animal, fond of music, very docile, and seeking after the society of man, whom he respected, loved, and often helped in noble enterprises. Unfortunately nowadays, observers have ascertained nothing of this kind; on the contrary, instead of these superior gifts, they discover decidedly bad traits. He is proclaimed to be stupid and voracious; knowing nothing, save to satiate his gross appetites; good for nothing, save to eat and reproduce; indeed an animal of the lowest class in the true meaning of the word. Then, his unceasing evolutions, which were looked upon as childish and graceful; his rapid cleaving of the waves, which was considered as a special favor granted to the steed and messenger of the divinities; his stubborn inclination to follow the galleys and triremes in spite of threats, the noise of the oars, or the songs of the sailors, which was explained by his ardent need of society and his passion for music; his immobility or quietness, when men approach him, which was considered as a proof of friendship; all these exist no more, it is but a tissue of illusions which fall one after another and are explained away by the anatomic and special conformations of this kind of cetacean. If he be quick in his motions, it is in order to seize his ordinary prey, composed of small, quick and lively fishes; if he surround and obstinately follow ships, it is only to find a profusion of this small fry crawling in the refuse and living on the débris constantly thrown into the sea during the voyage; finally, if he do not attack man, it is because he cannot; his structure does not allow him to do so. Otherwise, he would do like the shark, which, as well as he, follows ships, for according to Cuvier, he is the most carnivorous, and, in proportion to his size, the most cruel of the cetaceous class.



Terra-cotta Gutter, from the Campana Collection.

Therefore, we see, we are far from the charming and alluring stories which were often the subject of our tasks when we went to school, and read Pausanios, Pliny and the poets. These positive declarations from learned men, which caused so many charming stories to tumble down suddenly, were not accepted without strong protestations. Some men, with the courage of their convictions, were found who tried to refute what had been demonstrated with the aid of scale and scalpel. But it was useless; they were obliged to acknowledge well-proved facts and to learn that some of the qualities ascribed to dolphins could only belong to the seals, which are a kind of hyphen between quadrupeds and fishes. However, the difference of aspect between dolphin and seal is very great indeed: the Greek and Latin authors could not have made such a mistake as to confound them.

We must, with regret, forsake henceforward the legends and fables concerning the dolphin, however attractive and charming they may be; they are irrevocably condemned. But there remains to us—supreme consolation for ornamentists and writers!—the invention, the poetical creation which gave birth to so many beautiful conceptions in the arts: poetry, painting, sculpture and decoration—that harmonious music of a new kind, which remains for the pleasuring of the sight and of the intellect.

This marvellous theme, which embellished so many graceful and skilful designs, which rival the best in nature in beauty and elegance, is a splendid gift which Hellenic genius has bequeathed to us, the everlasting glory of which is to have known how to metamorphose in the name of the muse, even the coarsest types. It is ancient Greece, primitive and direct heir of the Eastern civilizations, which, better than any other, has called out these symbols and created emblems by her ingenious and passionate spirit for fable, and, by a certain method of abstraction, she has peopled the whole universe with deified beings. As she caused the woods to be inhabited by the joyous Faun, the brook by the timid Nymph, the sea by the Triton and nimble Nereid, she conferred on the latter a companion worthy of them, and, by preference, chose the dolphin, to which her thoughts had been already turned by the legend of the barbarous and credulous Pelasgians.

Italian Decoration from the Cathedral of Orvieto.

This fish, the intrepid, supple, rapid swimmer, became for all of them a rapid messenger; to his long and voluminous body was granted the required strength to draw the car of the marine deities or to convey them on his back. His custom of coming near men, following the ships or making a thousand turns in the harbors and along the shores, was sufficient proof to them that he was a medium between the earthly world and the inhabitants of the fathomless

[1] From the *Revue des Arts decoratifs.*

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waters. Moreover, it was noticed that the songs and the noise of musical instruments did not frighten him; therefore he was considered a lover of melodious sounds, and, being already consecrated to Neptune, god of the waters, he was consecrated also to Apollo, god of art, and, as such, was venerated by poets and artists, who were supposed to be inspired and helped by him in their works. Add to these numerous qualities the wonderful gifts that the old fables attributed to him, and which were increased by numerous local variations, and we have an idea of the great importance that the dolphin had, and of the great part he played. He has had all advantages and honors.

Thus it was that these fables, remarks of uneducated men, and trifling, unauthentic observations, were largely instrumental in creating a superior being, a kind of myth, which ran through the poetry of the civilized Hellenes, and which the arts of designs multiplied under all aspects as soon as they were in possession of suitable means of expression. Painters, mosaic-makers, sculptors, ceramic-makers, jewellers, medallists and workers in gems studiously emulated each other in reproducing mythological incidents in which the dolphin and his legendary exploits figured, and he contributed toward the creation of symbolic allusions and the delicate ornamentation of many remarkable objects. A dolphin shown as an animal for the daughters of Nereus to ride may be seen on numerous ancient monuments: frequently painters of vases represent Poseidon, the Jupiter of the sea, with a dolphin in his hand; still more often the modellers show us Eros transported by this sacred fish; again he is shown to us drawing Neptune in the midst of a magnificent court to meet Amphitrite, whom he is going to marry, etc. The adventure of the poet Arion of Methymne, who, when robbed by seamen, was thrown into the sea, where

> "Un dauphin, traversant les plaines de Neptune,
> Attiré par ses chants, prend soin de sa fortune:
> Il l'aborde, il l'emporte, il lui sert de vaisseau,
> Et donnant aux mortels un spectacle nouveau,
> Il le fait à leurs yeux, sans péril et sans crainte,
> Naviguer sur les mers de Crète et de Corinthe,"

became the subject of numerous artistic creations in all kinds of material. In accordance with the same order of ideas, great quantities of terra-cotta ware are ornamented with a dolphin, upon which rides a child armed with a trident or a whip: a plastic reproduction of the story brought down to us by authors, where it is said that a wounded dolphin was nursed by a child, and that the dolphin showed his gratitude in many ways, among others by conveying the child on his back over a river in order to prevent his walking too long a distance to school. As it was alleged that Apollo, in order to found the town and oracle of Delphi, had taken the form of a dolphin, the coins of that sacred place were decorated with one of these cetaceans, both as a souvenir and as a play upon the name of the place. To take a part for the whole is often done, and it emphasizes the genius of that people, in that the Greek artists were often satisfied to indicate the sea by a fish only, principally the venerated dolphin, just as for them a tree was enough to represent a forest: this summary fashion was largely employed in the decoration of vases. In the same way, coins were stamped with a dolphin, like a coat-of-arms, to indicate a port, a settlement of fishermen or a maritime colony. The coins of Ægina are stamped with a dolphin in the hollow square of the reverse; likewise at Messina and Syracuse, several of these animals surround the head of Arethusa.

From Holbein's Alphabet of Death.

Finally, the dolphin as a true comrade of fishermen and seamen is twisted around oars and tridents; is shaped for the use of jewels and engraved on the ring of the navigator Ulysses. When consecrated to the god of day, he is the guardian of the lamps, the handles of which are formed by him or he decorates their chains; an inhabitant of water, he is used in the decorations of fountains and to ornament the roof gutters. We might multiply quotations and examples; for this petted cetacean seems to be everywhere and is to be seen at every step, because he represents facts, ideas, feelings, passions, so often has the Greek applied him to the ordinary things of life, to a series of mythological conceptions, borrowed from the abundant sources of his lively imagination, always on the alert.

We all know that following the intestine wars of the Greek cities the emigrations *en masse* of the vanquished not only favored the creation of numerous colonies, but also that these new centres became so many towns similar to those they had forsaken. These people worshipped the same god, although they were far from their fatherland, preserved the same customs, rules, fables, emblems and symbols. It is through these migrations that the dolphin, very well-known in Southern Italy, was naturally implanted in Rome, thanks to the numerous objects furnished by commerce; there he enjoyed nearly as much consideration as elsewhere and was used to express the same ideas.

In a similar way, he was used as an attribute of the gods of marble and bronze, he accompanied the secondary divinities, he impersonated the liquid element, and was used to ornament and particularize jewels, cameos, utensils and the thousands of industrial products executed by Romans (or rather by the Grecian artists sought after by the sovereigns of the world, overburdened with wars and conquests.) In architectural ornamentations he appeared, as a matter of course, in certain temples and in the decoration of the circus: at one of the extremities of the spina there was a porch on the entablature of which were seven dolphins and which was called "Delphinæ" or rather "Delphinorum columnæ"; On the banks of the canal of Euripus, which separated the arena from the spectators, dolphins were fixed from place to place, and served to feed this miniature sea, as is mentioned by Cassiodorus:

"Euripus maris vitrei reddit imaginem; inde illinc Delphini æquorei aquas confluent."

[To be continued.]

A RUN THROUGH SPAIN.[1] — XIII.

ON THE WAY TO THE ALHAMBRA.

NOTWITHSTANDING I have heard voyagers and writers speak of Malaga as being a beautiful town, I affirm that Malaga is a dirty, hilly, rough town, with only the glorious sunlight reflected from the blue sea to give it life and beauty, and containing very little of interest. We arrived there early one morning on a steamer of the line that runs around the coast from Cadiz to Gibraltar and thence up around the Mediterranean shore. Our getting away from the latter place was picturesque, to say the least, and not without some excitement. Opposite the old fortified town of Gibraltar is a little place known as Algeciras from which the boats start. With the perversity of the Spanish race they will not start from the English town, and I don't know as one can blame them for their semi-hatred of a country that has so treated them. At any rate, we were obliged to get aboard a little tea-kettle kind of a boat and cross the bay in a drenching rain-storm; where the only cover was a little box-like cabin capable of holding only half the number of people who were on board. The storm beat into the bay heavily, and amidst anxious prayers for safety from some Spanish women, and various symbolical contortions from some Moors, the little boat bobbed along half covered with water. Now one might reasonably suppose that this boat would land us on board the steamer in regular order; but not so did it turn out. The low black docks came in view, and a number of row-boats totally without any cover from the storm took us to the piers. Our tickets had to be looked over, and our baggage examined lest some diabolical English luggage should be found therein. Then again we entered the open row boats and were slowly taken to the steamer which lay a half-mile off shore.

Thus like drowned rats we scrambled aboard saying to ourselves that at last we should get dry quarters, and a good supper. But behold! not a light in the cabin, and every state-room taken by officers of the steamer, leaving only a little room, with toilet attachment, for the women, and this for the accommodation of a dozen or more!

This was altogether too much, and, so, mixing up a literary bomb composed of Spanish, French, English, Volapuk and cuss-words, we prepared to fight for our night's rest. Happily we were joined by a courier and his family, who were enabled to make good grammar of

[1] Continued from No. 806, page 149.

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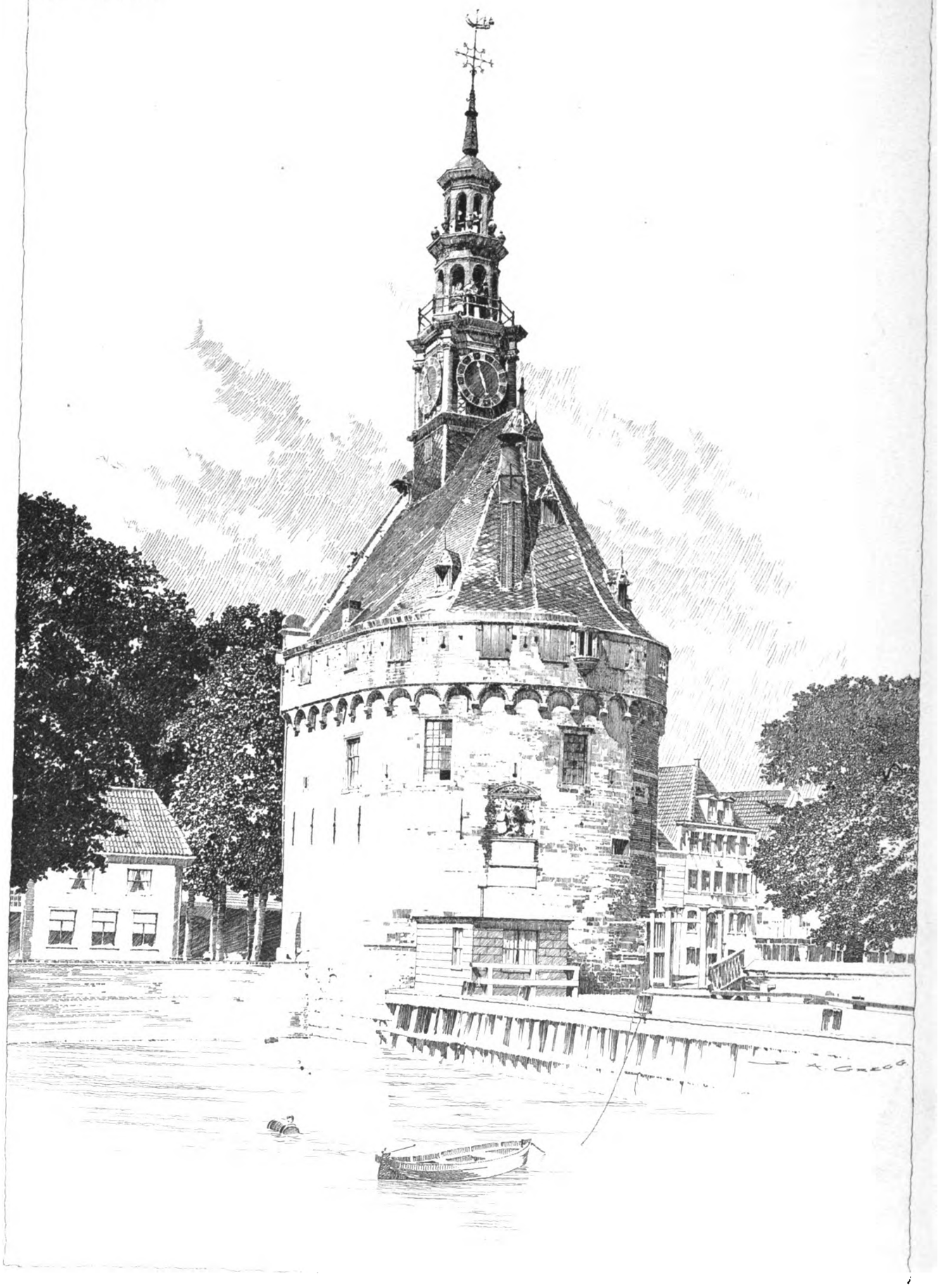
THE HOOFTATOREN, AT HOORN, HOLLAND.



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L. S. BUFFINGTON ARCHITECT
MINNEAPOLIS MINN. A.D. 1891.

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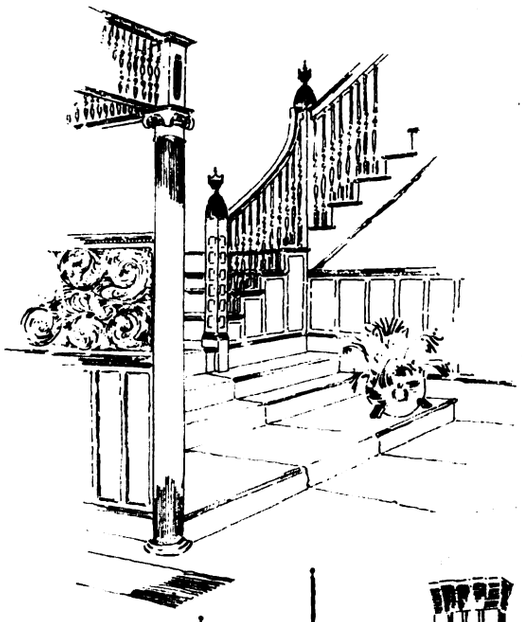

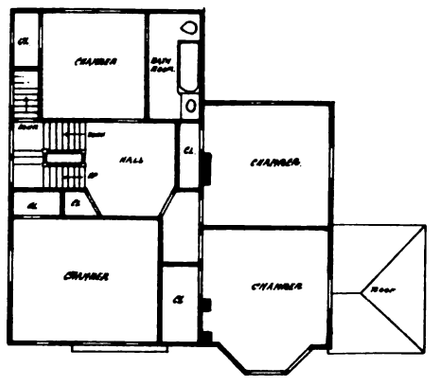

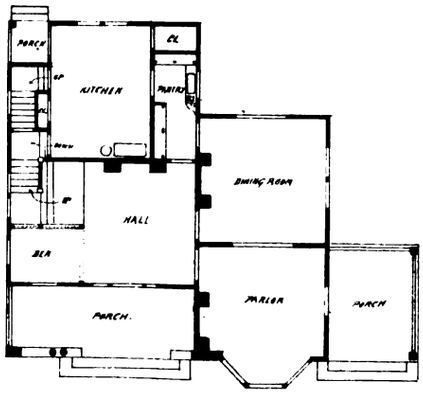

HOUSE AT RIDGEFIELD, N.J.
F.W. BEALL, ARCHT.
318 B'WAY. N.Y.

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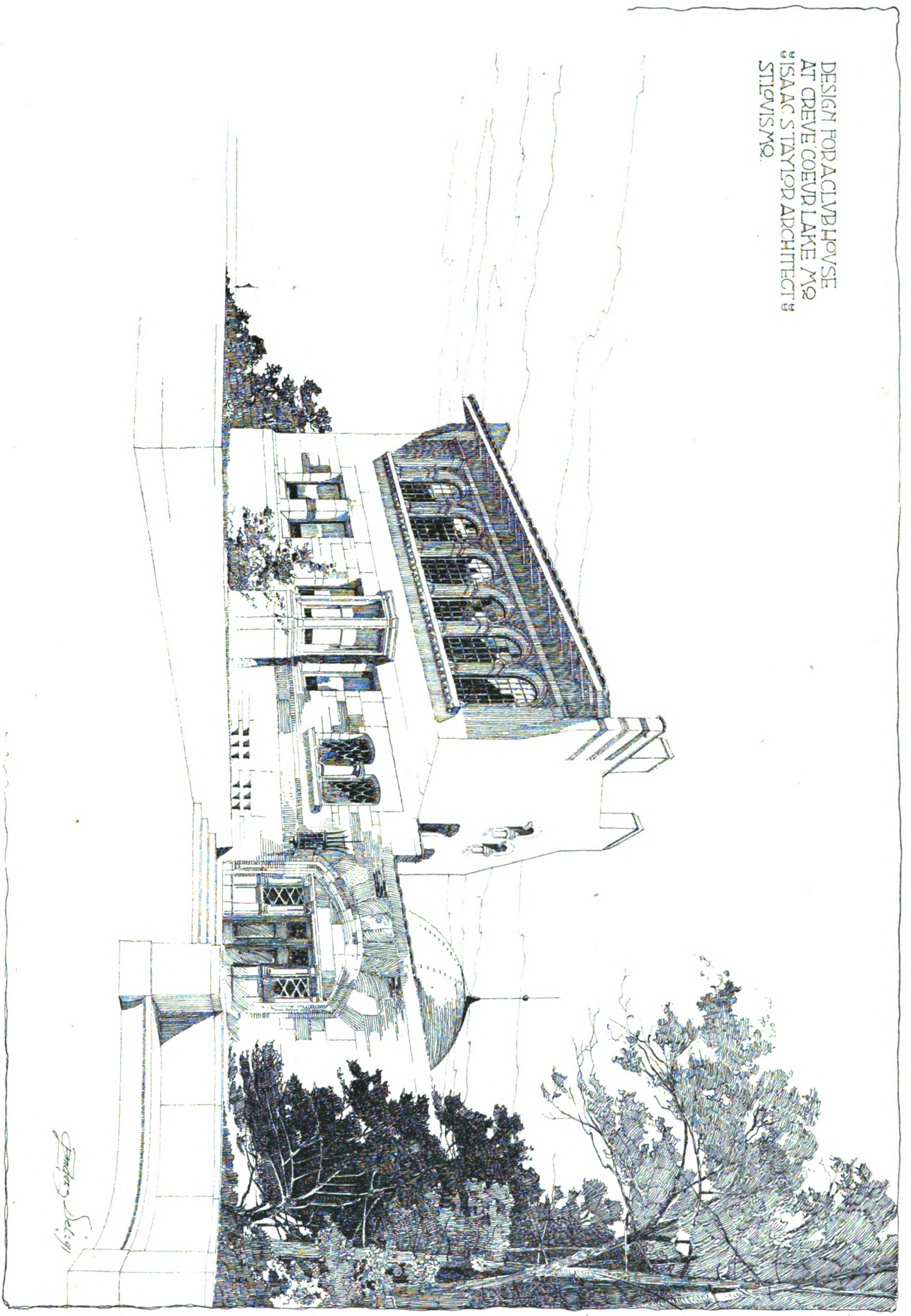

DESIGN FOR A CLUB HOUSE AT CREVE COEUR LAKE, MO. ISAAC S. TAYLOR, ARCHITECT, ST. LOUIS, MO.

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HOUSE AT IPSWICH, MASS.

FOR MR. ARTHUR L. SWEETSER.

JAMES T. KELLEY, ARCHITECT, BOSTON.

Geo. F. Bosworth Del. '91

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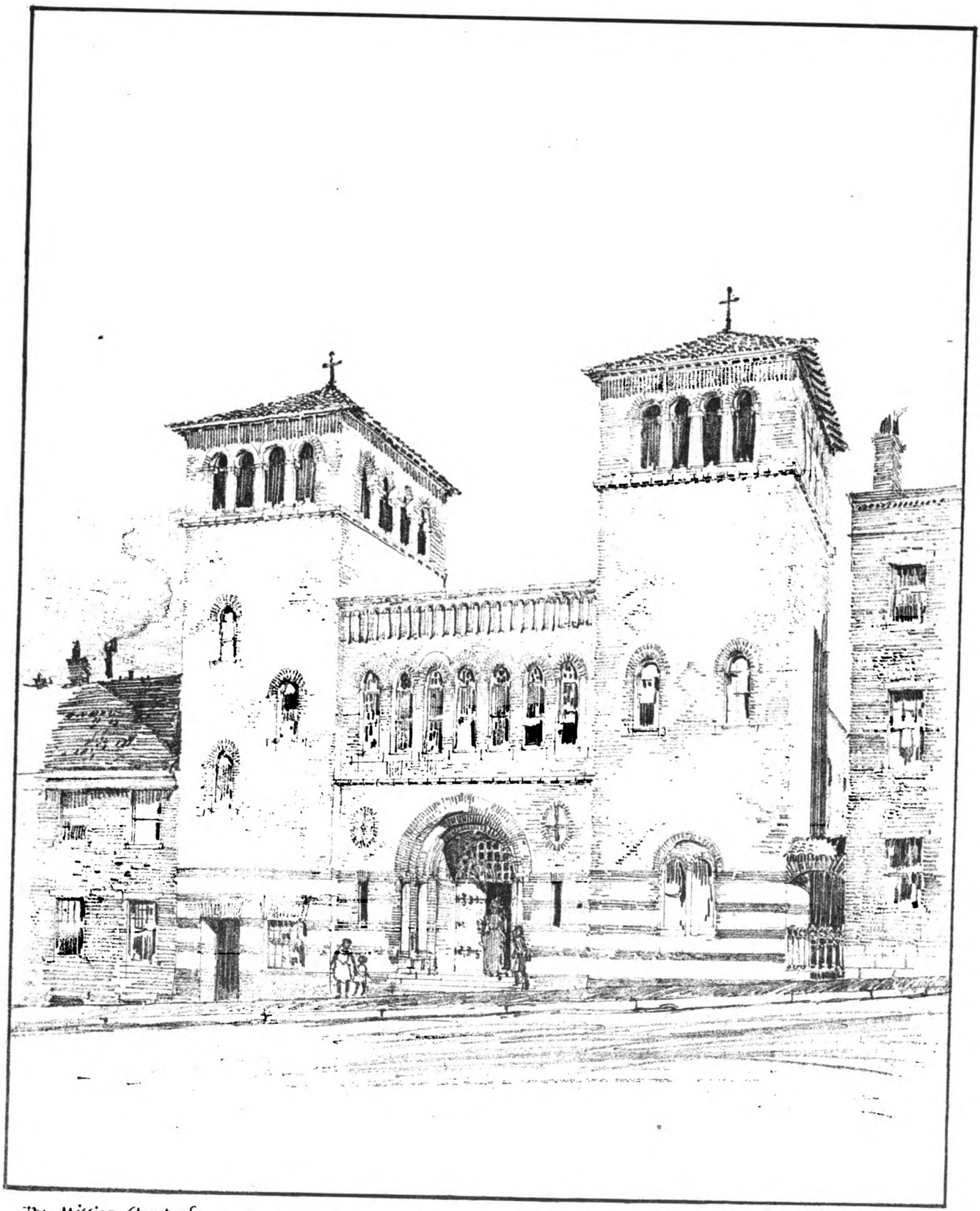

The Mission Church of.
S. AUGUSTINE ≈ Phillips Street.

Sturgis + Cabot Archts.
19 Exchange Pl Boston.

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our compound; but had it not been for sheer pluck and fight on our part, I verily believe we might all have slept on the cabin seats, for we were obliged to take forcible possession of the staterooms, pile in our baggage and prepare to fight for our places. The officers gave in with ill grace, and left us severely alone: whether they were accustomed thus to work every voyage, supposing they could force a fee from all hands, I do not know. At any rate, we were equal to their trick that time, and enjoyed a good night's rest.

Our landing in the Bay of Malaga was made early in the morning of a beautiful day, and the bay scene was interesting in the extreme. Here, by reason of the arrival of African boats, were to be seen bare-legged and dusky Bedouins in white *burnooses* mingling with peasants in sandals and *mantas* and Jews in embroidered *caftans*, while sailors from every isle of the sea in their native costumes ran hither and thither, shouting and yelling in all kinds of languages.

Although Malaga is, of course, purely a Spanish seaport town, in the little crooked streets are yet seen remnants of the Moors and their work. Here and there one sees a bit of stonework where the whitewash has come off and disclosed some Moorish signs. Over a doorway is a Moorish sign, and a glimpse inside shows the remains of a horseshoe arch with its raised decoration partly colored. One enters a store and finds wares of all kinds hanging to slender columns capped with arabesque capitals: the store was once a palace and the columns adorned a beautiful *patio* within. Here are broken bits of tile and an old iron grille, and beyond a garden where once was a luxurious growth, now overgrown.

You ask the owner to whom it belonged? He does not know, and he shrugs his shoulders towards the old Moor who enters and speaks gravely as he sighs and thinks of past ages. Remember, that to him these sights may have been those of his ancestors. Can you not fancy this old place alive with voices? Can you not conjure up before you the rippling of the water in yon old fountain, and the tinkling of the guitar? Surely the soft waving of palms has been heard here, and the intoxicating aroma of incense has permeated these halls lending life to the smiles and laughter of Moorish maidens. And lovers have been here and sworn their troth to eyes that were brighter than the stars. And all this has passed away, the grave Moor has disappeared, the merry maiden's eyes are dim, the font is broken and empty, and from its source no water——

Some one stops me right here and insists that this is all bosh, pure bosh, that we can design just as beautiful a fountain as the old one yonder, that the water of to-day is just as fresh and can flow with just as much bubbling and rippling as ever, and that there are eyes just as brilliant and eyelashes just as long in a species of maidens known as Americans. It may be so, and I think on the whole it is so, but one cannot help dreaming about these Moors in going through their old palaces, just as we do ourselves when we visit the old homestead of our boyhood's time, and moralize on the vicissitudes of life.

In order to hurry through this town and get on to Granada, we hired a carriage and proceeded to ride through the streets. Not a strange proceeding anywhere else, but in Malaga it brings on a shrug of the shoulders and the exclamations of the knowing ones "What fools they are, actually riding in Malaga!" when to ride through such horribly uneven streets is a sure sign of softening of the brain, no less than a cause of absolute dislocation of the vitals. Yet we hailed a cabby, who seemed to size us up much as a coroner would his subject, and after driving a bargain with him entered his rattley carriage. If there is any place less interesting than Malaga, we had not yet found it; even Medina with its questionable eggs, and its rum in the coffee, was more interesting, since there you expect nothing, and you find nothing, while here you expect something yet find nothing — but dirt. If again, there are any streets in the wide world that are rougher and dirtier we should be pleased to find them. We rode a dozen blocks and descended in a state of shakes, since every bone in the body had grated against its neighbor, was disjointed, unstrung and generally knocked out. The smile of the passer-by was fully understood.

One may, however, be interested in seeing the raisin-curing depots, for the Malaga raisins are noted and remembered from childhood.

We were glad to leave Malaga and if we had been asked at the station by any Spaniard disgusted with our remarks, why we had ever come to Malaga, probably we should have slung back at him his own talismanic words "*Sube Dios*," God only knows. Then on to Granada and the glorious Alhambra.

One arrives in the dark simply because one must do so. Spanish trains travel more by night than by day, for no reason under the sun apparently, unless it be to guard against a sunstroke to the engines: at any rate, one is often deterred from visiting the interior because of this strange practice. Possibly in this case it is better however, as we ride through a dirty town in the dark, are simply conscious of passing up a hill, through a beautiful forest of tall elm trees, where water trickles and bubbles continually, and where the end is a hotel, dark and silent, and a bed that is welcome after a long and tiresome journey. Sweet slumber follows this entrance into Granada, and morning brings the consciousness that the darkness of the night before was simply like a veil hiding the gates of Paradise, and that the sunlight now draws aside the veil and discloses such beauties as it is difficult for the mind to conceive.

To write in human words of the Alhambra seems almost like sacrilege; language cannot well convey ideas of such beauty, and if it could, no pen can ever better describe it than that of the immortal Washington Irving. Yet since every eye sees with a different focus as it were, and since a trip to Spain without Granada is like Hamlet without the ghost, I must jot down my impressions in a few words, hoping that the reader may but see it for himself in all its romantic beauty.

Yes, we certainly awoke in an earthly paradise, with which but few places can be compared, and while visions of Moorish tales were floating through the delicious dreams of our morning naps, we were rudely brought to a realizing sense of our exact surroundings by the waiter, who must needs suggest that he was ready to serve breakfast, and who was, no doubt, much disgusted that we should rush through it without ceremony. Poor fool, he no doubt wonders what could be more beautiful than a well-spread table at which one can sit and eat, eat, eat, until one is filled: we, however, think of food only as a means of existence, and count the wonders of the Alhambra far in advance.

The long shaded walk is before us as we emerge, lined with stately elms planted by the Duke of Wellington, who should have the everlasting gratitude of the world for his part in beautifying this far-away spot. On either side of the walk are water-courses, down which we had heard the water bubbling the evening before. Large stone fonts spout forth their golden streams, which overflow and splash away in foaming rivulets. The birds sing gaily, the sun shines brightly, the blue sky peeks through the tree-tops, the mossy walls covered with foliage loom up beside us, and ere long we approach a gateway which gives us the first impression of the Alhambra. It is the Gate of Justice, rough, broken, rugged and splintered, yet sublime in all the beauty of a Moorish mass, with simple horseshoe arch, glorious with the warm orange tints which flicker down through the trees and play upon its high wall.

INSIDE GATE OF JUSTICE.

Your first question is, of course, where are the key and hand so often spoken about?

Away up on the keystone is the mystical symbol that has puzzled savants for ages, and is looked upon with awe by every true Moor. Here is the first indication of their mystical character, and also the indomitable faith in themselves as a nation. Only when the hand should clasp the key should the Alhambra be taken from them, was a precept inculcated of old by its occupants. But ages have passed; the hand has not advanced a hair, only time has chipped its sharp surfaces and eaten away a part of the key, while others have occupied their palaces and gone in and out beneath its symbolic characters.

Just before we enter, however, there is an old moss-grown font to the right, and beside it sits an old fellow sunning away his time, and ever and anon glancing at the stray passer-by. It will give us a good opportunity to sit down and recall a few facts in regard to the Alhambra.

The old fortress palace of the Moorish monarchs was erected and added to at various times between 1250 and 1350, but it is fair and just to give Yusef I the credit for that which to us seems the most interesting and beautiful.

When the poor Moors were expelled, the vandalism of the conquerors destroyed much of the carving and fine work of the courts; and later, Charles V, coming along with all the pomp of a French court life, did all he could to destroy the remaining beauty by clearing out a space, and erecting a large circular façade in a modern style of architecture, and directly in the centre of the group. Years passed, and the Spaniards soon forgot the gem in so lovely a setting, and the French, upon an invasion in 1812, blew up parts of it, which later still suffered from the thunders of nature and lay shattered in the dust, unknown and uncared for. Not until Isabella II appeared was anything done to prevent its absolute dissolution, and yet the remains stand much as they once did, in all the beauty of an exquisite setting; a very mine of Oriental design.

As we sit here by the old font a delicious sensation of quiet and repose fills one's soul; the old man who stands beside the gateway seems metamorphosed into a Moor of old, whose very life depends upon his faithfulness to the hand and key above his head. A woman advances and fills her jug with water as clear, and running just the same, as a hundred years ago, and as she turns away some gypsy girls appear and endeavor to dispel our thoughts by dancing a gay fandango.

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But the grand old Gate of Justice is before us, the hand and the key rivet the attention and cast a spell over the mind, which is only disturbed by the approach of that well-known character, Mariano, a veritable king of the gypsies, "the model of the immortal Fortuny," to evade whom we start on and enter the gateway through which the tricky astrologer once led the beautiful Christian princess, with whom he suddenly disappeared into subterranean caverns much to the chagrin of her rightful lord and master, the king.

The sketch shows the exterior rough and broken, with the arch high in air, but it does not show the fact, which the plan discloses, that an abrupt turn is made under this arch, so that one emerges on the other side by a smaller and, to my mind, much finer arch, which still retains some of its tile-work in the spandrels, and over which the moss and lichens cling with loving tenacity.

After passing the arch the path ascends between high walls for a few steps, and at last brings one to a large court plateau, surrounded by the ruins of the old buildings. Directly in the foreground, however, is the huge, circular Palace of Charles V, in the style of the Renaissance, which is unsightly only because so perfectly out of keeping with the beautiful and refined delicacy of the old Moorish work.

This court is known as the Court of the Cisterns, and under the ground is a huge cistern of water, which comes directly from the river Darro, and is as cool and clear as of old when the stately Moor quaffed it from his golden vessels. But to-day here are the little donkeys accompanied by a charming little "*chico*," so many examples of which are found in every painting of Spanish life. The old staircase at Rome is not more prolific in Italian models than is the Court of the Cisterns in Spain, and taken all in all, surrounded as it is by all its beautiful palaces, one must be indifferent indeed, who does not itch to get hold of this little fellow and cover a page or two with sketches of his character. Ah, for the pencil and brush of a Murillo!

The question must arise in the mind of every one, Where is the entrance to the Alhambraic portions of the palace, for there is nothing to guide one? You try the right side, and find yourself in some underground passages and vaults seeming to have no outlet. And here is the pleasure of this Chinese-like puzzle, for no one shouts at you, no one is in sight, silence reigns supreme, and there are no unpoetical guide-boards painted with directions. One may follow his own inclinations and roam at will. But who would ever suppose from the outside that behind these low walls were the priceless treasures of the Alhambra! It is ever thus with Moorish work, the simplicity of the exterior never tells of the richness of the interior. At length one draws near a common everyday-looking-doorway fixed in an equally everyday stone wall. Surely this cannot be the entrance, there is no arch, there is no carving, no anything but a blank door. But it is, and within are a dozen guides who will seize you one by one, or two by one, or three by one as it may be, and will rush you through the court and tower, and with phonographic correctness tell you all about it, and will lead you out, pocket their pesata, and show you the door with a "God bless you man, you have seen the Alhambra! *A Dios, Señor.*"

We had made up our minds that no guide should accompany us, and having arranged for an entrance at will we were unmolested.

As one emerges from the corridor and stands in the sunlight of the first court, with its beautiful hedge of myrtle, and its rectangular pond of clear water fed by a font at each end, and which in the stillness of the air reflects a colonnade of arches and arabesques with a background of azure blue, he stands entranced.

I have written a hundred lines to describe the scene, but I have scratched them all out, and admit that as the artist cannot paint its beauties on canvas, no more can I describe that which in its beauty seems almost immortal, and which in general characteristics is known to all.

But if the view before us is entrancing, how much more so is the effect as we cross the court and enter the Sala de Embarjadores which rises seventy-five feet in height, being only about thirty-seven feet square, and whose ceiling is a mass of little bits of stalactite woodwork, so that it looks like a hanging honeycomb highly ornamented in bright colors. The walls also are literally encrusted with this beautiful Moorish ornamentation in relief, with the base of *azueljo* mosaic which glitters and glistens with the entering light.

I said to myself, I must copy some of this tile-work and ornamentation, so I opened my sketch-book and commenced.

"Those lines are wrong," say my friends.

"No," I insist, "it has a triangle as a base, and it will soon repeat itself, thus."

"But that is wrong, as you see from the original," say they.

"Ah, there is the fault," and I correct it. But there is another, and another, and still another, until I give it up in despair. It is not so easy as it looks.

Before seeing the remainder of the halls, one is led to think of the decorations and the hall itself as a delicate piece of architecture. But after coming back several times to it one is also struck with its massive strength and dignity. Justice was here meted out from the throne of an empire, and justice has nothing of delicacy about it. The thick walls, the high ceilings, the precipitous depths below seem now to frown on us notwithstanding their beautiful decorated surfaces, and we look back to those olden times, and find that the men who were educated enough to form such beauty were also educated enough to lay the foundations of power by wise and righteous laws.

From this hall went forth the decrees of a nation, which rose to the highest point of civilization, and shed its beams over the whole of Spain. And yet it is no more. We had seen a few Moors in Africa who yet held these memories dear, who lived in the stories of the past, and still held the veritable keys to many of the houses in Granada, with a faith stronger than would seem possible in the light of the last hundred years. They yet believe they shall be brought back to the lovely Alhambra.

Sad hope, never to be realized. They are dead to the world, a nation without a name or an abiding-place.

Day after day may you wander through the walks and *patios* of this beautiful place, building up romance on romance, simply because it is impossible not to do so. And you never tire of it either. One point of exquisite beauty is known as the Tocador de la Reina, a little room perched up on a point of land a hundred feet or so above the sloping hillside, and several hundred feet above the Darro which flows below. There the queen and her ladies made their toilets, talked up this and that bit of gossip, listened to the tinkling guitars played by the gypsies below, and possibly performed their devotions as a sort of *entr'acte*. Can you help romancing about such a place? The little room is about nine feet square, and although modernized by Charles at the time that he started the huge palace, it yet shows what a beautiful little bit it must have been. The walls had been decorated by Julio Aquiles with subjects of a mythological order, but are now scratched up by names of visitors whose only object in travelling seems to have been to leave a record of their vandalism where it can be seen by all. One notices an orifice in the floor at the entrance, and for a moment supposes it to have been like a register for the introduction of heat. Not so, however, for we are told that the room was perfumed daily for the queen, the odors being wafted up from a perfume-room below.

The little room is surrounded by a beautiful colonnade of marble, and in walking around one is struck with the beautiful views. Below, the Darro and its suburbs of gypsies. To the right the Generalife, white in the sunlight, and nestling among groves of tropical beauty. To the left are the massive walls of the Tower of Comares, and a balcony leads from one to the other. All the roofs are covered with the glazed Spanish tile, soft with age, with here and there strips of green and blue, which, however, add nothing to the beauty, unless it be a touch of Orientalism.

It may be well to call attention to the decoration of this old palace. The forms of *patio*, court, hall and font are in general like other Spanish palaces, but who can describe the decorations? They seem endless, yet are simply geometrical designs elaborated. Owen Jones says of Arabian architecture that "it is essentially religious, and the offspring of the Koran, as Gothic architecture is the offspring of the Bible. The prohibition to represent animal life caused them to seek for other schemes of decoration, and they thus used inscriptions from the Koran interwoven with geometrical ornaments and flowers not drawn decidedly from nature, but translated through the loom; for it would seem that the Arabs in changing their wandering for a settled life, in striking the tent to plant it in a form more solid, had transferred the luxurious shawls and hangings of cashmere which had adorned their former dwellings, to their new, changing the tent-pole for the marble column, and the silken tissue for gilded plaster."

The architectural part of the work, the arches, the *azulejo* dados, the *artesonado* roofs, and more than all, the beautiful white marble and alabaster columns, are no less beautiful than their decorations. Especially is this so of the capitals of the columns, each one a different design and in general ornamented in gold upon a red or blue ground, while the columns themselves were left in their purity.

To the architect who has studied the groining of a dome, the ceilings are wonderfully interesting. They look like honeycomb stalactites yet are cut on mathematical principles, and are capable of an infinite variety of combinations, just as it is possible to form a grand symphony from the fundamental seven notes of a musical scale.

While sketching some of their motives and necessarily inquiring somewhat into their construction, a gentleman passed and looked over the book.

"You are an architect or artist? he said inquiringly. "Yes, *Señor*," I replied, "and I was thinking what a wonderful effect these old fellows obtained by a repetition of the most simple forms." "Ah, yes," he replied, "I am the architect in charge and never cease to wonder at the same fact."

"Indeed, then you must give me a pass to see this glorious palace by moonlight, for it must be entrancing."

"Granted, *Señor*," he said, as he passed on, "better than that, I shall send you a permit that will allow you to go and come at will as long as you please."

And he kept his promise. CHARLES A. RICH.

[To be continued.]

UNEVEN FLOORS IN FIREPROOF BUILDINGS. — There is one peculiarity in the construction of fireproof buildings that few people have noticed. I refer to the impossibility of keeping the floors level. This applies to all buildings in which iron is used for supporting floors, but particularly to those in which steam is extensively applied to heating. The steam-pipes running near the iron girders cause them to expand, and as the walls are always strong enough to resist the pressure, there is a forcing up of the iron. This causes regular hills and valleys in the floor, although, of course, they are not very apparent. — *St. Louis Globe-Democrat.*

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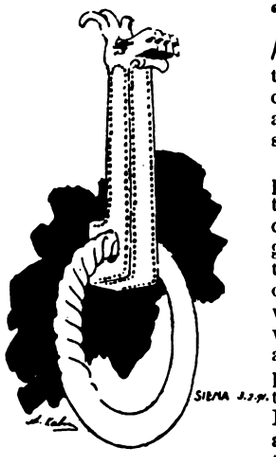
DRAINING THE EVERGLADES OF FLORIDA.



A STAFF correspondent of the *New York Tribune* writes as follows from Kissimmee, Fla., concerning the results that have been thus far obtained by Mr. Disston's interesting attempt to reclaim the vast area of swamp lands in that State: —

A startling transformation is taking place in the Florida peninsula. A gigantic drainage system, whose ultimate object is the reclaiming of the Everglades, has already lowered the level of the big lakes, turned oozy swamps into dry land, put farms, houses and mills where alligators once dived and cattle waded and ferrymen plied in dugouts, and made this town, in the heart of the peninsula, a seaport. Several hundred thousand acres have been added to Florida's taxable property and made available for profitable cultivation. In the next ten years this will become the greatest rice and sugar region in the country. The thing has been accomplished with characteristic American effectiveness. Hamilton Disston, its moving spirit, who makes more saws and files at Philadelphia than any other man in the world, has not "stood around," like the great De Lesseps, saying "Gentleman, for me the canal is finished." He has simply laid careful plans and employed a competent force to carry them out on business-like principles.

The Florida peninsula slopes to the south. Along the centre is strung a chain of considerable lakes, some entirely isolated, others united by tortuous streams. The southernmost lake, Okeechobee, the biggest of all, is also the largest within the bounds of any one State. Its waters inundate the mysterious Everglades, where the shy Seminole retreats before the advance of civilization. During the Seminole war General Harney, General Jessup and other officers learned something of the character of the country, and occasional expeditions have brought back stories of its dreary inaccessibility. But no white man has ever been able to make his home there. The upper or northern Everglades next south from Okeechobee are a wet jungle of dense saw-grass, populated by snakes and insects. In the rainy season one may paddle up the intersecting creeks and bayous in a light skiff, but in dry weather the soil is exposed. The lower Everglades, running down to the point of the peninsula, are also a saw-grass jungle, but cut up by countless water-avenues into thousands of islands. Toward the southern end there is a perceptible tide, and the Gulf and Atlantic shores are lined with a rock rim that impounds the waters.

Many people believe this vast territory utterly useless to man. The drainage companies are proving that it isn't. Centuries of decaying vegetation have gradually raised the earth-level of the Everglades, storing them with deep layers of rich, dark soil that makes husbandmen green with envy. A four-foot reduction of the water-level would make all this available for cultivation. General Harney in a letter, reported to the United States Senate, suggested that canals cut east and west from Okeechobee and the glades would give the required reduction. Mr. Disston, as the story goes, after careful examination and consultation with Colonel James M. Kreamer, his engineer, decided that it was also necessary to diminish the water-supply from the northern lakes that serve as feeders. These lakes, moreover, he knew, were bordered by marshes worth draining for their own sake. So he went to the Legislature and in 1881 secured permission to reclaim all lands below a line drawn across the peninsula a few miles north of Kissimmee and east of Peace Creek, which debouches in Charlotte Harbor. The tract embraced 8,000,000 acres. Four million of these, however, Mr. Disston was compelled to form a separate company to buy, to lift a State mortgage.

Then the work began. As the map shows, the lakes, as they occur southward on the sloping peninsula, are Tohopekaliga, Cypress, Hatcheenehaw, Kissimmee and Okeechobee. The water-level follows the land-slope. Tohopekaliga is sixty-four feet above the sea, Hatcheenchaw sixty, Kissimmee fifty-nine, and Okeechobee only twenty. Canals cut southward to Lake Kissimmee and the straightening of the very crooked river that links Lakes Kissimmee and Okeechobee have therefore relieved the upper lakes by a steady flow, while cuts from Okeechobee southward into the Everglades and eastward to the Caloosahatchie, that empties into the Gulf near Panta Rassa, have lowered four feet the surface of that great lake. The piercing of the rock rims on the coast is expected now to release the water accumulated in the Everglades. Then the engineers will make predictions as to the running of the first through train from Jersey City to Cape Sable. Meanwhile, in the north end of the chain a lake east of Tohopekaliga has been connected with the northern Atlantic coast by way of the St. John's River, to relieve the pressure there. So far about eighty-five miles of canal are cut. The trenches vary from 25 to 105 feet in width, and hold from 6 to 10 feet of water.

Kissimmee owes its existence to the drainage company. A few years ago the shore of Tohopekaliga at this point was a cypress swamp. But Captain R. E. Rose came here to build a dredge, the water-level was lowered seven feet, a wide beach was uncovered, docks and shipyards were built, and now the town has a big hotel, a brick court-house, and 1,500 inhabitants. The company has made this its field headquarters. At Southport, at the opposite end of the lake, you can ramble through a large banana plantation and see tobacco and sugar-cane growing where the land was once all under three feet of water. The plantation is now in bad hands. Grass and weeds overgrow everything, but the soil is evidently wonderfully rich and capable of high production at small cost. A Scotchman here recently declared that it looked like so many acres of barnyard manure. The Kelly brothers, whose Louisiana mill could handle more rice than they were able to produce, have established themselves in this neighborhood and declare that the soil beats that of the Mississippi. They have yet to produce their first crop, though as the land is said to yield twenty barrels to the acre, worth $5.35 a barrel, and costs only a tenth of the sum to cultivate, their outlook is encouraging.

The neighboring sugar plantation at St. Cloud, is however, a revelation. Several hundred acres annually yield a large growth of cane, where the water once stood six feet deep. There are a large sugar-mill, with tall chimneys, storehouses, shops and dwellings, and a line of railroad. The cane sprouts there seven years from the same stubble. In Louisiana it has to be replanted every two years.

"If I were your age," Claus Spreckles told a young man the other day, "I'd buy up all the muck land I could get in South Florida and plant sugar. It's as rich as any I've ever seen."

The canal mouths are protected by wooden jetties. Sand-bars form across them, but are easily removed. The current is about three miles an hour, and in the wet season there is water enough for light-draught navigation. A Mississippi steam-boat in 1884 ascended to Kissimmee from the Gulf, a distance of 360 miles. When East Lake and Tohopekaliga were first united (I think in November, 1884), the difference of level was six feet six inches. When the dams were cut, in the presence of a crowd of visitors, the first rush of the waters carried away the last vestige of the rubbish in the canal and scoured out the bed below the line of excavation. For ten days the current was unabated. Then the reduction of the lake water diminished the flow. The lake surface fell thirty-six inches in thirty days. The receiving lake rose only half an inch a day and that for only a short period. Only white men have been employed on the dredges. Their uniform good health is remarkable. Although they work for hours every day in the hot sun turning up green slime, there is no mortality. Not a case of malaria has been recorded since the first dipperful was taken from the marsh, and long life and service with the drainage company are now said to be synonymous. Mr. Disston's original contract with the State endowed him with every alternate 640-acre section of the land reclaimed. The Legislature subsequently appointed a committee to make better terms for the State. The committee showed its genius by formulating a new contract requiring the drainage company to spend $50,000 a year, and to pay the State 25 cents an acre for the land. The company is, however, relieved of the obligation of confining itself to alternate sections, and the 25-cent payments are balanced out of the $50,000, so that it takes a man of brains to see what the State has gained. The land costs 50 cents an acre to drain and sells for $25.

One curious result of this great engineering work is its effect on plant life. About Lake Okeechobee, for instance, the margin is covered with great areas of morning-glory vines, which have all sprung up since the tapping began to destroy aquatic vegetation. From the look-out of a dredge, as she ploughs through the marshes, the contrast is striking. Before her stretch green tangles of saw-grass and aquatic plants, with the brown water pouring in a spumy torrent over the head of the canal. A few marsh-birds rise from the quaking bogs and flutter off in alarm at the strange intruder. Otherwise, the wilderness is unbroken by signs of life. In the rear, where the dredge has cleared a watery path, the canal banks are firm, rushes and water-lilies lie browned and dead in the sunshine, green edible grass sprouts spontaneously, and herds of cattle graze in placid contentment. On one side is desolation, on the other endless promise. It is the story of the peninsula, the difference between the old and the new.

E. L.

AMERICAN CONSTRUCTION THROUGH ENGLISH EYES. — I.

THE MANHATTAN ATHLETIC CLUB, NEW YORK.

THE Manhattan Athletic Club of New York has recently erected a building of noble proportions and added to the architectural beauty of Madison Avenue. The façade is imposing, and the general architectural design is of the Renaissance period dashed with a little Flamboyant Gothic.

The building, about 125 feet square, which is absolutely fireproof, is six stories high, with a roof-garden, which is covered by a high peaked tiled roof.

In describing the arrangement of the interior, I will go first to the lowest point of the structure. The sub-cellar on the Forty-fifth Street side is taken up by the boiler and engine rooms. Here is the dynamo which furnishes electricity for 2,500 lights in the building, and here also is the large pump which draws the water from the artesian

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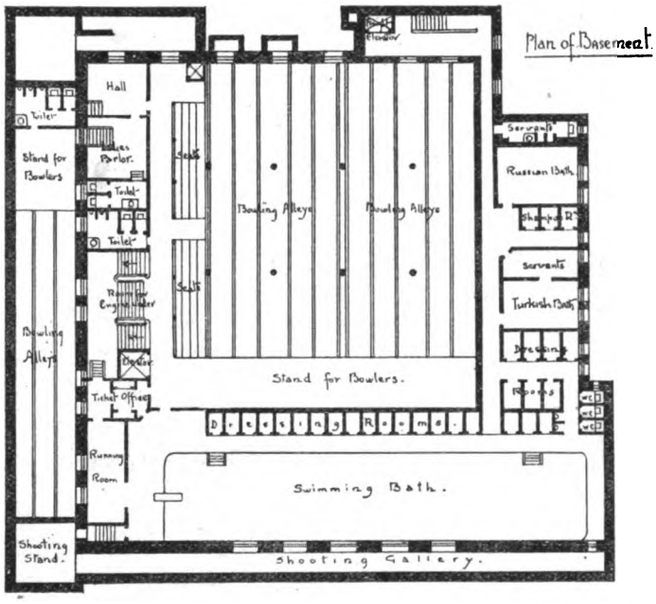
well, at the rate of 100 gallons per minute for all the uses of the building, except drinking.

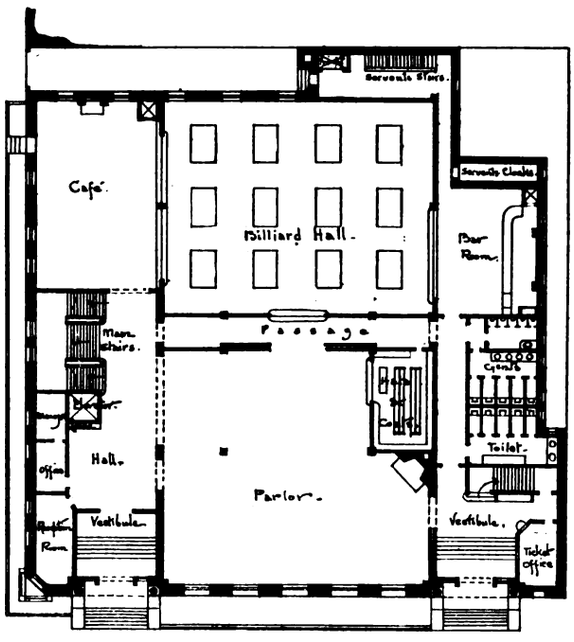
From the engine-room the basement is reached by one flight of stairs. In the rear of this floor are eight regulation-size bowling-alleys, and on the Forty-fifth Street side is the café and lounging-place for bowlers. These alleys are so constructed that between each of them are platforms which will seat, during match games, a large number of spectators.

In the front, and separated from the bowling-alleys by a solid wall, is the swimming-bath which is 100 feet long and 21 feet wide. This



superb plunge-bath is 8 feet deep at one end, gradually decreasing until it reaches the depth of 5½ feet at the opposite end. Upon the platform, and between the bath and the division wall, are a number of dressing-rooms and several rubbing-rooms. On the south of the building, back of the swimming-bath are the Turkish and Russian baths, where the most approved system of bathing can be had; and at the north end of the swimming-bath, directly in front of the bathing-master's office, is a lounging space for the bathers, and seen through a door opening back of that is the shooting-gallery. This room is underneath the sidewalk and has a range of 125 feet.

Entering the building from Madison Avenue, on the parlor floor is found the reception-room, in the rear of which are the offices of the Club and the manager's room, an Otis elevator capable of carrying a

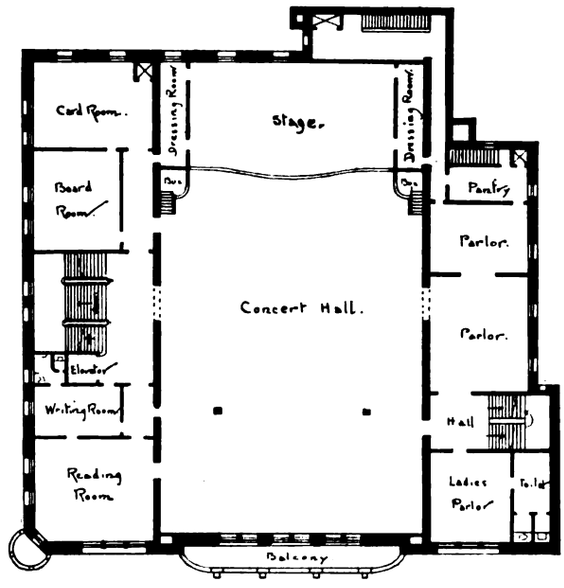


load of 15,000 pounds, the grand staircase, the café and the grill-room. On the right of the entrance is the parlor 62½ feet long by 38 feet wide with five windows, each six feet wide, opening out upon Madison Avenue.

Behind the parlor is the large smoking and lounging hall, at the south end of which is the hat and coat room. In the rear is the billiard-room, with twelve standard-size billiard and pool tables.

At the extreme south, on Madison Avenue, is the private entrance to the concert-hall which is on the second floor. In the rear of this entrance and approached only through the Club proper, are the boot-blacking-rooms, lavatories, retiring closets, barber shop and bar-room, which has an entrance directly into the billiard-room.

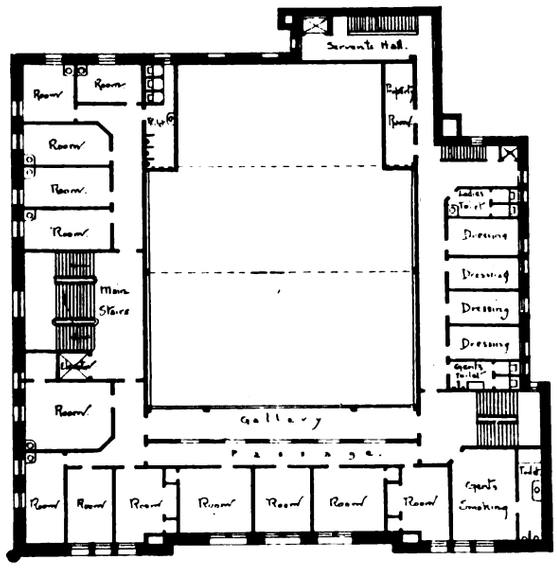
On the second floor in the centre of the building is the concert-hall, with a seating capacity of 1,500 persons. The length of the hall is 107½ feet by 62 feet, with a stage 38 feet 10 inches by 24 feet, dressing-rooms and proscenium-boxes on either side, and a balcony



at the Madison Avenue end. At the back of the stage is an iron stairway to the alley leading to Forty-fifth Street. On ascending the main stairs and on the floor with the concert-hall, are the reading-rooms, the writing-room in the rear of that, the Governor's room and the card-room. On the same floor is the ladies' parlor and toilet-room, two large parlors and a pantry for the use of those wishing refreshments during entertainments. This hall is expected to net a large revenue for the Club, and is separated from, or opened into the club-house by two large folding-doors opposite the main staircase. The ceiling is 25 feet high, the rooms on either side having ceilings only 12½ feet.

As we ascend the main staircase we come to what is called an intermediate floor which contains eighteen large sleeping apartments and the gentlemen's smoking-room, at the back of which are dressing-rooms for the use of those occupying the concert-hall.

On the third floor is the gymnasium, the dimensions being 109 feet by 47 feet 6 inches. This floor is fitted up with the most modern



apparatus, and is one of the best rooms and most perfect of its kind in the United States.

On the south is the boxing-room, 29½ feet by 25½ feet, toilet-rooms, lounging-rooms, locker-rooms, dressing-rooms, a drying-room and three needle-baths. Behind the bath-rooms is a short stairway ascending to the floor and running-track above.

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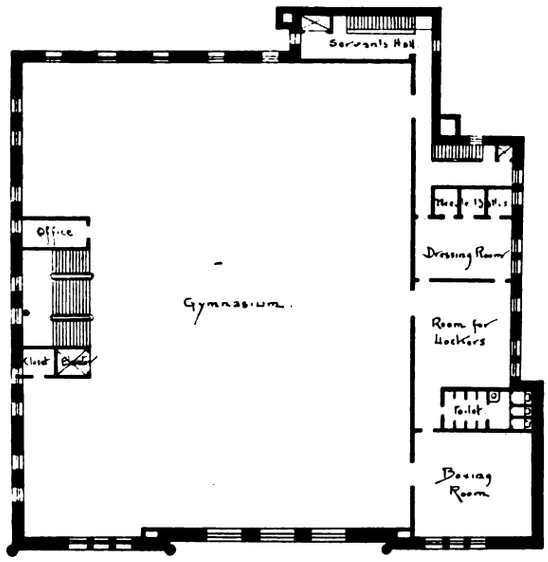
The running-track is 10 feet wide and 14 laps to the mile in length.

On the south side of running-track is the fencing-room 29 feet 7 inches by 25 feet, lounging and retiring rooms and a room for lockers.

Over the gymnasium is a skylight 50 feet by 40 feet, which furnishes sufficient light for the gymnasium and for rooms on the floors



Plan of Third Floor.

above, where windows open into it, and its height allows the introduction of climbing-ropes and upright ladders, 41 feet long.

On the floor above the gymnasium is the dining-hall, private dining-rooms, and their dependencies, the housekeeper's apartments, servants' sleeping-rooms, etc. The dining-hall is 63 feet by 23 feet, and the private dining-rooms at either end are so arranged that they can be thrown open and become part of the main hall.

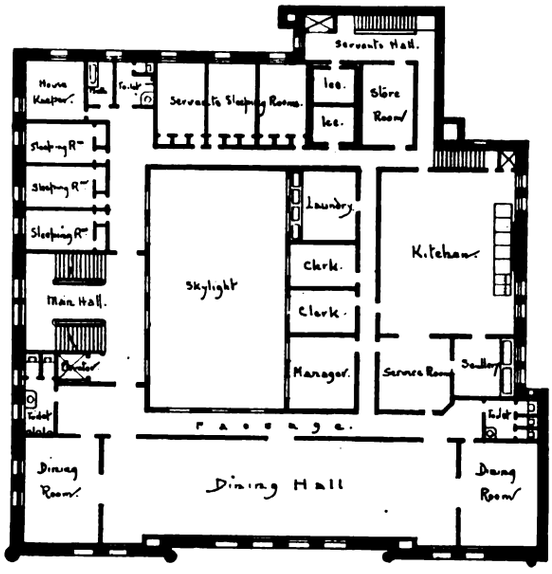
Arriving at the landing on next floor we enter an enclosed room which leads to the roof-garden, which is surrounded by and covered with a roof of iron construction. On the south side is a pantry from which refreshments are served, and in this pantry is an Otis hydraulic dumb-waiter running through the kitchen to the bar-room on the first floor.

All the several materials used in the construction of the building have been in accordance with the plans and details prepared by the architect, Mr. P. J. Lauritzen, of New York.

In excavating for the foundations a natural-water spring was struck which, for some time, was a source of trouble to the progress of the work. It was, however, eventually arched over with brick in cement

The Madison Avenue front in first-story, to top of second-story window-sills, is laid with alternating courses of light-red and Seneca sandstone partly tooled and carved, and partly left rock-face. The shafts of two columns at each of the main entrances are of red granite, polished. All stones have been carefully selected, laid in cement and pointed with putty of a salmon pink.

The terra-cotta used is of a reddish-brown color, corresponding



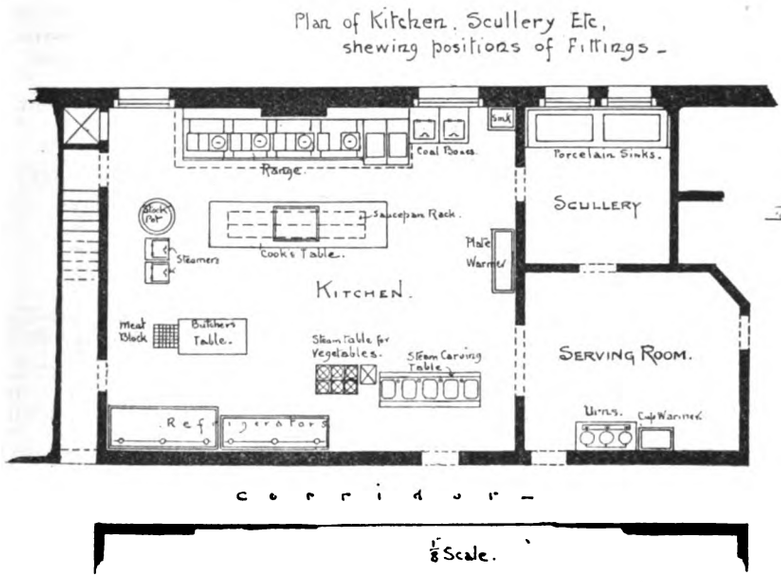
Plan of Fourth Floor.

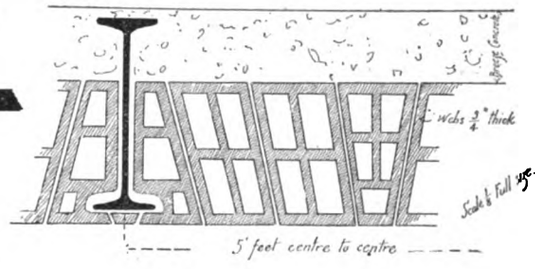
with the stone dressing. The manufacturers supplied models for all enrichments and a complete set of diagrams for the workman's use when setting.

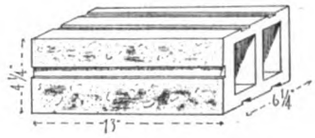
The boilers are placed in the sub-basement in one battery with outside and division walls of the required thickness. The fire-boxes are lined with fire-bricks laid in just enough fire-clay mortar to give them an even bearing. The setting is so arranged that the flames and gases pass to the rear of boilers, thence returning to front through the flues and again to rear through a flue formed by the top of boilers and a brick arch concentric with top of boilers.

All the floors are laid with 8-inch terra-cotta tile blocks projecting 1½ inches below the bottom flanges of the floor-beams. The partitions are of hollow tiles with the necessary porous tiles for nailing trimmings to other woodwork. All outside walls are lined with hollow bricks laid up with the walls, with a line of headers in every sixth course.

The steep roof over front of building is covered with composition







and asphalted, and upon this was spread a thick bed of concrete. The concrete used in the foundations and under all walls, piers, and columns, is made of the best Portland cement, in the proportion of one of cement to two parts clean, sharp grit-sand and five parts hard-stone, thrown into trenches in two or three layers, each layer rammed solid until free cement appeared on the surface.

The two street-fronts are faced with Seneca red sandstone up to top of first story. The bases and sills are tooled and the other work is left rock-faced without tool-marks — except where margins occur.

blocks (Lyon's patent) two inches thick laid on the angle-irons and afterwards covered with Spanish tiles.

The bottom of swimming-bath is laid with best Rosendale cement concrete, six inches thick, well-rounded and rolled to a surface, finished with a smooth top-dressing of 1½ inches thick, best Portland cement, and the platforms around it are treated in a similar manner; the sides of the pool are cemented with best Portland cement, measuring one inch thick on the brickwork. The edges of platform are finished with a shallow gutter.

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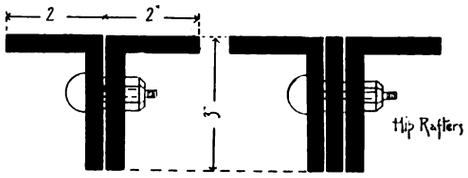
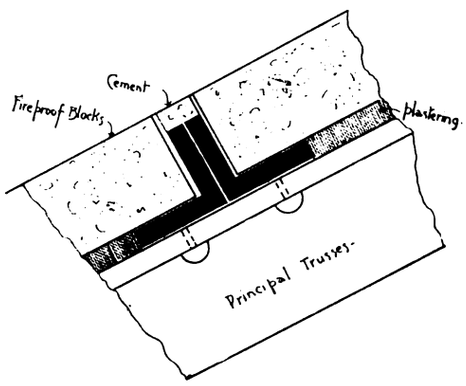
All dressing-rooms, and Turkish and Russian baths are concreted in same manner, also the shooting-gallery on Madison Avenue front. The balance of basement floors, as also all the other floors have arches filled up with concrete to top of beams and spaces between sleepers filled up likewise, well rammed and finished level on top of sleepers.

The entire flat portion of the roof and also the roof-garden, is concreted above arches and covered with best Trinidad asphalt concrete measuring two inches thick above the top flanges of beams and girders and is finished with a smooth surface and properly graded to rain-water leaders.

The sidewalks are laid with Mat. Taylor's granolithic pavement, the bed being four inches thick and the top finishing layer two inches thick, left smooth. All walls, partitions and ceilings are plastered with three-coat work. All projecting girders, where lathing was necessary, are covered with galvanized-wire cloth, of 1½-inches mesh, put up to the shape required.

The roofs are constructed entirely of iron, copper, concrete-blocks and Spanish tiles: the blocks are placed between the flanges of small T-iron bearers or battens and all joints carefully made in Portland cement. The blocks are composed of breeze and cement and form a light fireproof covering; each block measures 20 inches by 15 inches by two inches, and upon these is laid a covering of thin felt or roofing paper, which is secured to blocks with galvanized-iron nails and buttons of tin. The paper is used not so much for protection to weather as for the use of the workmen, who require a good even surface for lining-out, when laying the roof tiles; the tiles are fixed each with two galvanized nails and bedded and jointed with colored-cement putty, all making a very clean and sound roof. The tiles are





corrugated and measure 12 inches by 8½ inches. The hip tiles are semicircular, of seven inches diameter, each fixed to a wood roll with one nail and cement joints.

The skylight is constructed with T-iron wrought trusses sufficiently strong to support the heavy glass skylight laid upon it, and two of the trusses are sufficiently strong to carry the trapezes which may hereafter be suspended therefrom. The skylight proper is made of copper ribs and ¼ inch thick ribbed glass in large squares and is provided with moveable sashes, likewise of copper, in the upright sides. The roof ventilator on top of skylight is entirely of copper and is well secured against weather. The well-hole of this skylight has been formed under difficulties. The clear space on floor of gymnasium being of much importance, no uprights could be used, the sides of the well are, therefore, made of two immensely deep girders of lattice type, the full depth of one story, the spaces between the lattice is filled-in with fireproof blocks serving the purposes of girders and partitions.

The roof over the roof-garden is proportioned for 50 pounds per square foot in addition to the weight of the structure. The general scheme of the framing is this: a heavy truss is placed parallel with Madison Avenue, supported by side walls and one row of columns; from this truss and at right angles to it are placed three trusses which receive support from it and from a rear row of columns, two of these trusses form the sides of the light-shaft and are constructed to receive fireproof filling.

The bottom chord consists of two 10-inch channels, 7-inch vertical beams and diagonals of two 7-inch channels. The front slope of roof is supported by jack-rafters spaced not over six feet apart covered by 4″ x 2″ T-iron purlins, 20½″ between centres. The rear and side slopes are constructed in a like manner. The wrought-iron principals are composed of two angle-irons 3″ x 2″ bolted together: the hip-rafters are of double angle-iron 3″ deep, bolted between to receive other short rafters and as extra stiffening.

The roof-garden is so arranged that it can be used as a promenade, with plants and trees arranged as in a garden or conservatory. The whole surface can be flooded with water in winter and in freezing weather the natural ice can be used for skating, at the same time giving opportunity for other outdoor winter pastimes as desired.

The view of landscape from any side of the garden is grand and impressive.

The main staircase to roof is constructed with wrought-iron strings covered with cast-iron casing: the outer strings are 12″ iron, the centre carriage a 12″ I-girder to which cast brackets are bolted to receive the steps.

The fascia round the well-hole and on strings is ornamented with panel-work and relief ornaments, and the newels and railing, of cast-iron, are highly enriched. Steps and platforms constructed of slate of even color: the other stairs are similar in construction but more or less ornamental as the case requires. Those of the best floors have Italian mosaic inlays in treads at the value of $3 per square foot. The risers and nosings in the two entrance vestibules are of bronze metal.

The running-gallery is constructed of wrought-iron beams 8″ deep built into walls and 15″ channel-beams for the front curb, the curb is supported by suspenders of wrought-iron from the girders over. The iron railing has a wood hand-rail on top.

The base for the flag-pole at the corner of the block is constructed of wrought-iron framework which extends up inside the terra-cotta dressings from one story below the cornice to the point where the pole begins to show. It is well anchored and tied to iron girders at the floor and eaves level, and is covered with bronze metal. The height of finial from top of terra-cotta work is 40 feet and the total height of flag-pole from the main cornice is 85 feet; the total weight of the finial-ironwork and pole exclusive of outer metal casing is about three tons, and considering that the axial line overhangs the vertical angle of the building by several inches, it is a very daring piece of construction.

A. A. Cox.

[To be continued.]

THE ILLUSTRATIONS

[Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.]

WEST SIDE OF MAIN HALL IN THE HOUSE OF I. V. BROKAW, ESQ., FIFTH AVENUE AND 79TH STREET, NEW YORK, N. Y. MESSRS. ROSE & STONE, ARCHITECTS, NEW YORK, N. Y.

[Gelatine Print issued with the International and Imperial Editions only.]

DESIGN FOR A CLUB-HOUSE, CREVE CŒUR LAKE, MO. MR. I. S. TAYLOR, ARCHITECT, ST. LOUIS, MO.

THE MABEL TAINTER MEMORIAL, MENOMONEE, WIS. MR. L. S. BUFFINGTON, ARCHITECT, MINNEAPOLIS, MINN.

THE MISSION CHURCH OF ST. AUGUSTINE, PHILLIPS ST., BOSTON, MASS. MESSRS. STURGIS & CABOT, ARCHITECTS, BOSTON, MASS.

HOUSE OF ARTHUR L. SWEETSER, ESQ., IPSWICH, MASS. MR. JAMES T. KELLEY, ARCHITECT, BOSTON, MASS.

HOUSE AT RIDGEFIELD, N. J. MR. F. W. BEALL, ARCHITECT, NEW YORK, N. Y.

THE HOOFATOREN, HOORN, HOLLAND.

[Additional Illustrations in the International Edition.]

HOUSE OF ISAAC V. BROKAW, ESQ., FIFTH AVENUE AND 79TH STREET, NEW YORK, N. Y. MESSRS. ROSE & STONE, ARCHITECTS, NEW YORK, N. Y.

[Gelatine Print.]

THE building is 52′ x 9′ 0″. The façades are Hallowell granite. The roof is covered with Ruabon tiles: the woodwork of the first story, halls and stairways is English oak; all other woodwork throughout, is American quartered-oak.

The parlors 20′ x 24′ (on Fifth Avenue) are furnished with Siena marble mantels; papier-maché ceilings and frieze; the walls covered with satin.

The main hall 16′ x 40′ (east of parlor). The walls and stairs are Siena marble with bronze joint, mosaic frieze and papier-maché ceiling, decorated in gold and color; on the north a large window by Mr. Lathrop represents Industry, Hospitality, Abundance. The library 20′ x 22′, on the right of entrance, is furnished with Siena marble mantel; papier-maché ceiling and cornice decorated in metal and frieze walls covered with stuff.

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Dining-room 20′ x 30′, finished with carved English oak cornice and ceiling, Siena marble mantel and illuminated leather frieze.

Five chambers on each (2d and 3d) floor, with dressing-rooms, bath-rooms and closets; ceilings and cornices of papier-maché, walls and ceilings decorated in oil.

The fourth story is given up to servants' quarters. In the basement are the billiard-room, butler's room, laundry, servants' hall and kitchen. In the cellar is the steam-heating plant, the entire house being heated by indirect radiation, each room having an independent heat source and fresh-air inlet; the temperature is regulated by an automatic device. Every room in the house has an open fireplace; all fireplaces being of cast bronze with mosaic hearths. The gas-fixtures of the parlors are cut-glass; all other fixtures are bronze, with cut-glass globes for gas and electric lights. The parlor and dining-room furniture and gas-fixtures are made from the architects' designs.

DINING-ROOM IN THE SAME HOUSE.

[Gelatine Print.]

EAST SIDE OF MAIN HALL IN THE SAME HOUSE.

[Gelatine Print.]

NEW SCHOOLS AT KNOWLE, BRISTOL, ENG. THE LATE J. D. SEDDING, ARCHITECT.

FARNESE PALACE, ROME, ITALY. DRAWN BY THE LATE H. R. RICARDO.

ST. ANDREW'S BOARDING ESTABLISHMENT, DROITWICH. MR. JOHN ROBERT NICHOLS, M. S. A., ARCHITECT, BIRMINGHAM, ENG.

THE above establishment, which forms the subject of our illustration, is just completed for Mr. John Corbett, M. P. The site, which forms an important position, is adjacent to the St. Andrew's Brine Baths, Salters' Hall and the Old Raven Hotel, and occupies the whole frontage of the southwest side of Bath Road in connection with St. Andrew's Road and the Worcester Road.

The style of building is in accordance with some of the old buildings noted in the town of Droitwich and the surrounding parts of Worcestershire. The advantages of the brine springs of Droitwich have been utilized by Mr. Corbett in a most liberal manner by the erection of the St. Andrew's Brine Baths. The swimming-bath may be classed as one of the finest in the kingdom, and to follow up Mr. Corbett's liberality he has erected the above attractive establishment to accommodate the numerous visitors who are resorting to Droitwich as a health resort.

The building is designed on the corridor principle, and will accommodate about one hundred and twenty visitors, including several suites of rooms for families and servants. The dining-hall and drawing-room are central and well arranged for convenience. The principal staircase forms a very attractive feature. The external portion being octagon in shape is constructed entirely of timber and glazed with stained-glass, and forms the entrance to the garden quadrangle. On the ground floor and first floor there are two extensive lounges at the west end of the main corridor, forming the circular end of the campanile, together with separate writing-rooms for ladies and gentlemen. A spacious billiard room and smoke-room are provided with a separate approach from the garden quadrangle. The culinary arrangements have been well studied, both for position and convenience. The kitchen is in direct communication with the dining-hall by means of a serving-room and buttery. Designs have been prepared by the architect, which will shortly be carried out, for a subway for direct communication from the establishment to the brine baths.

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

A QUESTION OF COMMISSION.

ST. LOUIS, MO., May 24, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs, — Will you kindly give your opinion on the following case through the *American Architect*.

Suppose an architect is employed to make plans for a residence to cost $4,000, and after having received assurances of perfect satisfaction from the owner regarding their merits, and that they are the "very thing wanted," the architect in order to satisfy himself as to the cost of building the structure from these plans, applies to a competent contractor, to whom he is referred by the owner, for an approximate estimate of cost. That this contractor estimates the cost at $5,000. That the owner expresses surprise at this estimate, refuses to consider it saying that through malice or other cause the estimate was unreliable. That owner orders architect to proceed to write the specification, keeping the cost as low as possible. That finally the bids all come in, ranging in cost from $4,000 to $5,000 and each of them is rejected by owner. In this case can the architect hold owner for making the plans and specification — can he collect by law the amount of his fee according to the regular "schedule of charges." The owner had a reasonable knowledge of the cost of the structure, not only from the approximate estimate, but from the assurance of the architect who informed him that the plans which suited him could not be executed for the amount of money he wished to invest. Could it affect the case if the architect explained to owner that the estimate was only an approximate one; that it was high rather than low, and that the structure could be built for less, but that it would still cost over $4,000.

I shall be grateful for your opinion.

Yours, E. H. O.

[IF the architect was employed to make plans for a house to cost $4,000, and it proves, after reasonable inquiry, that the plans made by him cannot be carried out for that amount, the owner is entitled to return the drawings and pay nothing for the architect's services. If the owner elects to use the drawings, he waives the condition that they must be capable of being carried out for a certain sum, and is then bound to pay for them. — EDS. AMERICAN ARCHITECT.]

FRÉMIET AND RENAISSANCE SCULPTURE.

BOSTON, MASS., June 8, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs, — In admiration of the genius of Frémiet, I yield to few people. Still, I think Mr. Bartlett, in the last chapter of his extremely interesting papers on that great sculptor, goes a little too far when he says that none of the subjects which Frémiet has treated "bear any special or general relationship to any phase of Renaissance . . . growth and development" and that he "needs no encouragement or sympathy from any source, save nature, and from that he has got everything." Without doubt Frémiet is honest in declaring that he cares nothing for other sculpture than that of the Parthenon, but none the less, he has sometimes, if unconsciously, been influenced, I think, by Gothic or Renaissance models. Witness his "St. Michael," which certainly is a very close parallel to the statuette of "St. George" in the Museum at Dijon (the native town of Frémiet's master, Rude), a work of the fourteenth century.

A wood-cut of this may be found in Charles Knight's "*Old England*," Volume I, Figure 875.

AN ADMIRER OF FRÉMIET.

THE MONTREAL EXHIBITION OF [ALLEGED] OLD MASTERS.

MONTREAL, CAN., May 26, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs, — Your Canadian correspondent has evidently not seen the paintings by "Old Masters," mentioned in your valuable publication of last week, but has taken for granted that an exhibition promoted under the protection of the archbishops of Montreal could not possibly include any but meritorious works of art, as set forth in the catalogue. *De facto*, the said paintings were such a lot of old rubbish as has never before been foisted on any gullible public under similar pretences. Charity, as object of the exhibition, prevented the disgusted in Montreal from demanding the closing of the "Exposition de peintures antiques."

Its purpose having been accomplished and the affair over, I thought it well not to let such an interesting account of a Canadian Exhibition of Old Masters go down to posterity uncontradicted in your usually well-informed journal.

Respectfully yours, E. COLONNA.

A CORRECTION.

NEW YORK, N. Y., June 8, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs, — I notice in your journal for June 6th, in which appears my drawings for the American Fine Arts Society's Building, that you wrongly state that "this design was placed fourth, etc." I beg to state that there were but three designs selected for elaboration as the result of the preliminary competition open to the members of the Architectural League. My design, though not adjudged the final award, was one of these three.

Will you kindly make this correction, and oblige,

Yours truly, EDMUND B. WELLS.

NOTES AND CLIPPINGS

UTILIZATION OF SMOKE. — So much has been said and written upon the smoke-abatement question that the idea of utilizing this dire enemy of public health and cleanliness so as to actually make its existence a source of profit is somewhat attractive. In a lecture recently delivered by Professor V. B. Lewes, reference was made to certain facts in this connection, of high interest. One was that at three or four Scotch ironworks the Furnace Gas Company are paying a yearly rental for the right of

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collecting the smoke and gases from the blast-furnaces. These are passed through several miles of wrought-iron tubing, diminishing in size from 6 feet down to 18 inches, and as the gases cool there is deposited a considerable yield of oil. At Messrs. Dixons', at Glasgow, which is the smallest of these installations, they pump and collect about 60,000,000 cubic feet of furnace-gas per day, and recover on an average 25,000 gallons of furnace oil per week, using the residual gases, consisting chiefly of carbon monoxide, as fuel for distilling and other purposes, while a considerable yield of sulphate of ammonia is also obtained. In the same way a small percentage of the coke-ovens are fitted with condensing gear and produce a considerable yield of oil, for which, however, in its crude state, there is but a limited market, the chief use being for Lucigen and other lamps of the same description, and for treating timber for railway sleepers. In view of such arrangements Professor Lewes is not unnaturally sanguine that the smoke-fiend may eventually be dealt with in a way quite as satisfactory, but far more profitable than mere self-consumption. The oil above described can, for instance, be greatly improved in quality by ridding it of the large percentage of watery particles it contains when freshly condensed. Mr. Havely, of Baghill, near Pontefract, has devised a process whereby not only the water, but the paraffin, cresol and phenol, are removed from the crude oil, leaving the residuum in better condition, and of high value for timber. This oil, Professor Lewes asserts, can be used as an enricher of gas, enabling gas of a higher illuminating power to be produced at a reduced cost. If this be true it will not be the least remarkable instance of waste-products of a process becoming even more valuable than the original article manufactured. — *Invention.*

Paraffin for Clearing Rusted Flow-pipes. — A correspondent has recently contributed to the *Decorators' Gazette* details of some experiments made by him, with a view to clearing hot-water pipes by the aid of a paraffin oil. His hot-water pipes had become choked until only a stream of water about the size of a pencil would run through. After going to a plumber for advice and then to a firm of specialists, he mentioned paraffin to them, but they thought it of no use, and to convince him produced several pieces of pipe (in which the substance still remained) and which they had cut out to replace with new ones, and to show how hard this substance was, they took a hammer and chisel and chipped several pieces off. This was, however, not done without a pretty heavy blow. He tried paraffin on these pieces, and found that in an hour or so the paraffin was through and through them, and although hard, not so hard as they had been. This was enough to encourage him to try the experiment on the pipes, and so he at once poured about one-and-a-half quart bottles into the pipes between boiler and bath, etc., and allowed the same to remain for about half-an-hour. He was, however, in too great a hurry, for after turning on the water again there was no improvement. Next morning found the small pieces referred to still softer. Eight days after they were so soft that they could be crushed between the fingers. He was again encouraged, and led to believe that the substance in the pipes might have absorbed some of the paraffin during the half-hour it remained in the pipes, and that the softening process therefore might have gone on all this time also. He therefore made a pump, but instead of forcing the water back into the boiler, drew it out from the pipes at the bath. He had only given one or two "draws," when a very strong smell of paraffin convinced him that his supposition regarding the substance having retained some of the paraffin was correct. He continued drawing, and the water became first red, then thick and muddy, and all of a sudden with a rumbling noise down the pipes the water came full and free as well as ever it did. — *Specialties.*

Wood and Iron under Fire. — In his recent lecture on fire prevention Professor Goodman states that, generally speaking, wooden joists are better for buildings than steel or iron joists. The two latter materials, he explained, lose their strength at a not very high temperature, whereas wood would sustain a heavy strain for a much longer period when exposed to great heat. Besides, when wood has once been charred it does not burn so readily again. Iron and steel soon expand under the influence of heat. Brick and stone are objectionable, the former become fused under great heat, and the latter is liable to crack or fly when suddenly cooled after heating. The drawback to tiles is that when fire plays upon the joists of floors fitted with them, the joists expand and allow the fire to play upon the joists through the tiles. Portland cement is objectionable, as it flakes off when heated, but if wire-netting or bars are embedded in concrete this defect is remedied. A joist padded with silicate of cotton and encased in Salamander plaster (a mixture of silicate, cotton, and plaster-of-Paris), the professor holds, is a splendid fireproofing material. Such a material is not only a non-conductor, but it is elastic, and would yield with the joist. In an experiment undertaken by Professor Goodman it was found that a joist of this kind withstood very fierce heat for eight to nine hours without sustaining any serious damage. — *Builder.*

Excavating with the aid of Dynamite. — We recently witnessed a very interesting mode of obtaining a foundation for a new building. A hole was bored in the ground (which was previously damp), from 10 to 12 feet deep and 1 1-2 inches wide and a string of cartridges was lowered into it: the subsequent explosion not only produces a cavity a yard in diameter, but also drives the water out of the surrounding earth by means of the expansive action of the gases. The water does not return to its former place for fully an hour, so that an opportunity is afforded to fill up the cavity with quickly setting concrete and a rapid rate of working is thus attained. — *Indian Engineering.*

TRADE SURVEYS.

It is, perhaps, better for all concerned that the country has been subjected to the checking-up policy which it has suffered for the past six or eight months. The depression has been one of those blessings in disguise which it is not easy to recognize as beneficial. A number of unfavorable symptoms began to manifest themselves last year in the direction of over-production, speculation and demoralization of certain avenues of trade which might have developed into actual evils. Speculative schemes began to multiply, and town-building enterprises began to attract a great deal of attention. It is certainly correct to say that a great many plans entertained last year have been dropped. A good many schemes have been nipped in the bud; quite a multitude of enterprises are hanging fire. Many look upon the dropping of these things as disadvantageous, and as the symptom of declining activity. The other side of the question is that capital was being invested faster than needed; that more towns were being started than could be built; that more countries and corporations were springing into existence than there was need of. The correct opinion, perhaps, lies half-way between these two. Since last autumn, the process of liquidation has been in quiet progress; a great deal of trade organization has been going on; weak spots have been discovered, weak places in business strengthened. Better methods of doing business are being developed, and a broader comprehension of the wants and needs of the community at large is had. A number of improving tendencies are at work which are not easily observed or even defined when noticed. Despite what rash writers say to the contrary, we are dropping into more correct and safer habits of doing business; the commercial agencies testify to this; so do the banks. The managers of large commercial and manufacturing corporations know that the country at large is drifting in the right direction as regards the safer transaction of business. There are some features, however, which studious care and application to business cannot influence; these are fundamental, and one or two of them have been frequently referred to. The most important is the establishment of a safe, elastic and sufficient financial system; while there is no dangerous speculative tendency at work, the seeds are being sown for a crop of speculative ventures, which may spring up in a year or two; just what these are it is unnecessary to point out at this time. There is a general desire to keep values even and steady, but the history of trade and commerce shows that it is impossible to prevent violent fluctuations. As heretofore pointed out, trade organization has made extreme fluctuations less probable, but, on the other hand, circumstances are developing opportunities for future speculation on a grand scale. This is one of the evils which the active business men of the next two or three years have to guard against. The ratio of commercial failures is keeping within prescribed limits. The July failures will, it is announced, fall below the usual average; dealings are restricted to almost actual necessities. The declining volume of business is warning buyers and sellers to keep out of danger. The manufacturing interests are all in pretty good shape. A heavier July demand is generally looked for to compensate, in a measure, for the dull months of the first half of the year. The iron trade is improving slowly. Last week, sixty thousand tons of rails were ordered. Between forty and fifty thousand tons of structural and plate iron and steel were also contracted for. In the lumber trade, there is general complaining over small orders. In planing and saw mills work is not up to the average of the past two or three years. The manufacturers of farming implements are having a busy season. Fortunately for all interests throughout the West and South, practically, values have reached a point which secures buyers against fluctuations in a downward direction. During the past year, a good many coal-mines have been opened in coal-producing States. This is the outcome of the overflow of smaller industries from the older States. Sites are being sought for with even greater earnestness by small manufacturers than last year. This is partly due to the fact that competition is crowding the smaller manufacturers and little business men from a good many Eastern cities; trade combinations are partly responsible for this. Business men with limited capital are finding it impossible to hold their own against the machinery of large trade and manufacturing organizations; they are compelled to get farther away, and in this outflow are drifting into new localities in the newer States, where they are making markets for themselves. In the textile trade, a further decline in activity is reported in the cheaper lines of goods. American manufacturers have not yet gained confidence in themselves sufficient to warrant them in carrying large stocks, as is the custom among foreign manufacturers. American makers desire to see buyers at their doors almost before accumulating goods. The Southern cotton-goods manufacturers are reporting a declining trade for the past month or so. Their foreign trade is growing, but the percentage of goods exported is trifling. The projection of new mills would go to indicate that the industry is in a thriving condition generally. Within the past few months, an unusually large number of hosiery establishments have been projected West and South. In fact, the multiplication of little industries is one of the most encouraging features of those sections. The capital involved in individual cases is small, and, so far as a record of their progress has been kept, the great bulk of them are making two ends meet.

The subject of providing rapid-transit facilities for cities is engaging the attention of engineers, capitalists, municipal authorities and many others interested directly and indirectly in the increase of transit facilities from the business centres to suburban localities. There are several difficulties in the way of a practical and immediate solution of this question. Engineers are unable as yet to suggest or provide an economic system. The application of electricity has not yet been developed to a practical point. The obstacles in the way of a greater utilization of steam are well known; elevated roads cost too much, and tunnels are too expensive. The world is waiting on the mechanical engineer and the electrician. There are, perhaps, two or three score of companies now organized, and either engaged in construction of rapid-transit facilities or awaiting some more acceptable method of rapid transit before entering upon work. There is a feeling that some better system is needed, and engineers are and have been hard at work upon this problem. The underground system of London has been referred to frequently, and the adoption of that system strongly recommended. A recent statistical statement shows that between sixty and seventy cities and towns in the United States are discussing the question of rapid transit, and, in fact, are awaiting some perfected system before adopting any of the suggestions made. The subject is a very important one, and engineers evidently manifest a lack of confidence in themselves to efficiently deal with it. The adoption of Mr. Gould's idea in New York shows that the solution of the problem must be delayed for an indefinite period. The difficulties in New York, however, are exceptional; other cities and towns can adopt some of the existing methods with profit. Still, the whole question is one which will bear a great deal of study, and it, in fact, is awaiting a solution at the hands of some inventor or engineer who can take a decided step in advance of anything that has yet been proposed. In Philadelphia, Pittsburgh, Chicago and several other large cities more or less progress has been made toward the adoption of rapid transit, but there is a hesitancy manifested everywhere against even the best methods that have been suggested. Residents of cities are anxious to reach the suburbs. Mighty interests are to be subserved by the development of some efficient system. The ablest engineers admit that the best plans are open to serious objection.

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TRADE SURVEYS. 188

AFTER our last issue had gone to press, it occurred to us that the reply we had made to the inquiry of a correspondent, "E. H. O.," might with advantage be amplified. Without repeating the statement of the case, as each reader can refer back to it easily, we will say that if an architect is employed to make plans for a house to cost $4,000, and it proves, after reasonable inquiry, that the plans made by him cannot be carried out for something near that amount, the owner is entitled to return the drawings and pay nothing for the architect's services. How near the estimated amount must be to the limit of cost fixed by the owner to enable the architect to recover is a question on which the judge and jury might both have something to say. In a case where an architect sued for making plans for a hotel, the owner claimed that his instructions were that the cost should not exceed $75,000. The architect testified that $100,000 was the limit given him, and the estimated cost, as estimated from the tenders of contractors, was $102,000. The judge of the Supreme Court charged the jury that if they believed the owner's story, that the limit was understood to be $75,000, the architect could recover nothing for his services; but if they believed the architect's account, that the limit was $100,000, they should give a verdict in his favor, as the estimated cost was sufficiently near the limit to entitle him to his full compensation. Moreover, the owner claimed that the architect's commission of five per cent ought to be added to the estimated cost, making the latter nearly $108,000, or $8,000 beyond the architect's idea of the limit. The court ruled that the architect's fee was not properly included in the estimated cost, but that even a discrepancy of eight per cent between the limit and the estimate would not be enough to deprive the architect of his compensation. In "E. H. O.'s" case, the owner said that the plans were "the very thing he wanted." That might mean either that they were just what he wanted, if they could be carried out for $4,000, or that they were just what he wanted, regardless of cost, and the jury would have to decide which he intended. If he intended the latter, or if the architect told him that it would cost more than $4,000 to carry them out, and he made no objection, but proceeded with them; or if in any way he waived the strict limit he had set, and gave the architect to understand that he would like to execute the plan, even if it cost somewhat more than $4,000; or if he had kept the drawings, or made copies of them, or in any way used or proposed to use them, he is bound to pay the architect the proper or agreed compensation, and a jury would be quick to detect any intent on his part to cheat the architect out of his fee; but if he really wanted a four-thousand-dollar house, and gave the architect to understand that definitely, the latter has not earned his pay by planning him a five-thousand-dollar one. Whether any *bona fide* estimate was near enough to $4,000 to justify a judge in ruling that the architect reasonably fulfilled his engagement, having in view the inevitable uncertainty of builders' estimates, we could not say, having no particulars of the other bids.

THE law recently passed in Massachusetts, limiting the height of buildings in cities to one hundred and forty feet, does not meet the approval of *Fire and Water*, which thinks that owners of valuable land ought to be allowed to build upon it as high as they choose, provided they make their buildings thoroughly fireproof. While this view of the subject is natural enough to persons who chiefly concern themselves with the fire-risk of buildings, there is another point to be considered, in the injurious shadow cast by very high structures on the neighboring streets and buildings. Where such buildings are scattered at wide intervals, this effect is not much noticed; but if one owner is allowed to make an office-building or hotel two hundred feet high, his neighbors must have the same privilege. To take a single example, the Ames Building, in Boston, the highest structure in the city, stands on a narrow street, with a low building opposite, and the loss of light is not much noticed; but plans are said to have been made for pulling down the low building, and erecting another as high as the Ames Building, the result of which would be to plunge that part of the street into a gloom resembling that of the streets in Italian cities. This, in our climate, would be accompanied by a chill in winter, and a malarious stagnation in summer, which would be unpleasant, if nothing worse, and, independent of the fire-risk, the people of Boston have reason to be glad that the height of their future buildings has been limited, even to so very liberal a maximum as a hundred and forty feet.

THE excellent scheme of Mr. John Armstrong Chanler, for giving meritorious American students of art an opportunity to study abroad, has been so far successful that a beginning will be made this year in New York. Early in October the exact time and place of the competition for the scholarship will be announced, but it is already decided that all persons shall be eligible as candidates who have studied during one school year in New York State; who are more than twenty-one years old; and who has received no medal or honorable mention in any foreign exhibition. The preliminary competition will be by means of drawings sent by the candidates to the jury, and a certain number of these will be selected, whose authors will be required, in the presence of the jury, to make a drawing from the nude, to paint a head from life, and to make a composition in color. The competitor who passes this test most successfully will receive the title of "Winner of the Paris Prize," but if he or she is able to bear the expense of study abroad, the money attached to the prize will be given to the candidate standing second. Before the money is granted, the recipient is required to agree to send home specimens of work at the end of each year, and, at the end of the five years during which the scholarship continues, to return to New York, and teach gratuitously, twice a week for two years, a class of students selected by the jury. The prize-winners in Paris will be under the charge of a Commission of Control, consisting of Gérome, Puvis de Chavannes, Carolus Duran, Dagnan, Bonnat and Benjamin Constant, who will meet twice a year to examine the work of their protégés, and will send to the jury in New York a report upon it.

THE *Builder* reports an English case, resembling very closely one mentioned a few weeks ago in a letter from one of our correspondents here. It seems that the well-known firm of architects which, under the name of Archer and Green, designed several important buildings in London, was dissolved not long ago, and, according to the statement of the partner who appears as plaintiff, the other partner, before the dissolution, obtained several sets of photographs of the buildings designed by the firm, and, after that event, had all the photographs adorned with the legend, "Designed by ——— ———, F. R. I. B. A., 14 Blank Street, and sent sets of them to Lord Rosebery, the Royal Commissioner of Woods and Forests, and

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various other distinguished persons. The partner whose name was left out brought an action for libel, on the ground that such conduct was intended "falsely and maliciously" to convey the idea that the partner who sent out the photographs was the sole designer of the buildings, and asked for an injunction to restrain him from further propagation of this notion. The court suggested that the counsel for the parties had better try to come to a settlement, to avoid a long inquiry, but the defendant's lawyer said he had been unable to come to terms, and that as the pleading did not allege that the statement on the photographs was false, or that the plaintiff had suffered any damage, he claimed that the plaintiff had no case. The plaintiff's counsel thought that the inscription imputed to the plaintiff, by omitting his name, a want of skill; but the judge could not see that the statement of claim disclosed any cause of action, and ordered judgment for the defendant, with costs.

VERY few persons know what an enormous work has been undertaken at the Iron Gates of the Danube, where operations are rapidly progressing, mainly in accordance with a plan devised many years ago by our distinguished countryman, Mr. McAlpine. The total length of that part of the river to be regulated is about two hundred and fifty miles, so that the enterprise ranks with the cutting of the Panama and Suez Canals, as one of the greatest engineering feats ever attempted. Work has been begun simultaneously at three points: at Greben, where there are reefs to be taken care of, at the cataract, near Jucz, and at the Iron Gate proper, below Orsova. At Greben, where the stream is shallow, but swift, a channel two hundred feet wide is to be blasted out of the rock, and below it a stone embankment wall is to be built, more than four miles long. From a reef which projects into the river a piece is to be blasted away, measuring five hundred feet in length, and about nine feet in depth. The difficulties of working in this part of the river are very great. Not only is the current extremely rapid, but in certain places ridges of rock barely covered at low water alternate with pools a hundred and forty feet deep, which give rise, in the rapid current, to frightful whirlpools and eddies. These deep pools are to be filled, at the same time that the reefs are cut away, and it is estimated that nearly three million cubic feet of loose stonework will be needed for this purpose alone. In addition to the excavation, artificial banks and breakwaters, for modifying the course of the stream, are to be built; so that it is estimated that the masonry to be executed in this section will amount to about five and one-half million cubic feet.

IN the cataract section, at Jucz, a channel two hundred feet wide, and more than half a mile long, is to be blasted out of the rock, and a breakwater built, to moderate the suddenness of the fall. This breakwater is to be about two miles long, and ten feet thick at the top, increasing in thickness toward the bottom. The rock in which the channel must be cut at this point is partly serpentine-greenstone, partly chrome-iron ore, and is intensely hard. In the section of the Iron Gate, the work to be done consists in "canalizing" the river for a distance of a mile and a half, by building a wall on each side, and excavating the bed of the river between. The channel between the walls will be two hundred and fifty feet wide. It is estimated that nearly three million cubic feet of rock will have to be excavated here, all of which will be used to fill-in behind the embankment walls. Of course, the greater part of the rock will be removed by means of blasting with high explosives, but some of it is to be attacked with a novel instrument, which was first tried, on a small scale, on the Panama Canal, and is to be used for serious work here. This instrument, as it is to be employed on the Danube, consists of an enormous steel drill, thirty-three feet long, and weighing ten tons. By means of a machine like a pile-driver, this monstrous tool is raised to a height of about fifty feet, and allowed to drop, point first. So heavy a mass of metal, falling from a considerable height, meets with comparatively little resistance from the water, and the point shatters and grinds up the rock on which it strikes. Fifty or sixty blows per minute can be struck with a tool of this kind, and ten thousand blows, in all, can be inflicted before the tool is so worn as to be past service. Several of these drills will be at work at the same time, and, to remove the fragments of rock which they break off, a huge dredge, of three hundred and fifty horse-power, is to be employed. For excavating by means of explosives, arrangements have been made for drilling the holes for the cartridges with the greatest possible rapidity, as on this depends the celerity with which the work can be pushed forward. Much of the drilling will be done by means of diamond drills, which are mounted on boats. Five of these boats have been provided, each with seven diamond drills, arranged so as to work perfectly in twenty feet of water. Other boats are fitted with pneumatic drills, which are operated by means of air, compressed to a tension of seven hundred and fifty pounds to the square inch. The pressure of the compressed air is transmitted by means of water to the drills, which act by percussion, and work very rapidly. These drills are curiously automatic in their operation. After boring the holes to the allotted depth, the machine automatically sets in each a tube, washes out the dust, inserts a dynamite cartridge, withdraws the tube, and connects the wire of the electric fuse in the cartridge with the battery wire in the boat. The cartridges are charged with a pound of dynamite to each. In hard rock, only one charge is fired at a time, but in softer material four are fired at once. If the water over the work is deep, the boat is not moved from its position, but in shallow water it is towed a few yards away from the spot where the explosion is to take place. The drill-holes are about six feet deep, and are spaced at the rate of about one to every three square feet, something, of course, depending upon the character of the rock. The whole work is now under contract, the mechanical engineering firm of Luther, of Brunswick, having undertaken to complete it in five years, for a payment of less than four million dollars.

AS every one knows, the building laws and other police regulations are very strict in Germany. Not long ago, a lady built a house in Berlin, and contracted expressly with the builder that he should assume entire responsibility for the observance of all police regulations and directions. When the exterior came to be washed down and finished, the men who were doing the work transgressed the building regulations in some way. A notice was sent to the lady, who, supposing that the builder, under his contract, would look after such matters, paid no attention to it. The cleaning-down went on as before, and the lady was arrested. She produced the contract, by which the builder assumed all responsibility for such matters, but the police tribunal held that, notwithstanding this, she was liable to prosecution and punishment for the infringement of the law by the builder, and that the only way in which she could have transferred the responsibility upon the person who had contracted to bear it would have been, as soon as the first notice reached her, "to take energetic steps against the continuance of the work."

AFTER a good deal of discussion, the great Machinery Gallery of the recent Exposition in Paris has been leased by the military Governor of the city as a military riding-school. The cavalry exercises are to terminate at ten o'clock in the morning, and after that time the building is to be open to the public. What the public will do there is not quite settled, but it is hoped that the place can be used for civilian riders, and that it may become a fashionable resort, not only for ladies and gentlemen who like riding, but for the much larger portion of the public which likes to see other people ride.

THE *Deutsche Bauzeitung* tells a pretty story about the monument of the great architect Schmidt. Not long before his death, Schmidt had a severe attack of illness. Thinking that he might not recover, he discussed with his son the sort of tombstone he would like, and the inscription he wished to have placed on it. He finally concluded that a plain stone slab would suit his taste best, and desired that it should have on it his "mason's mark," enclosed in a shield, showing his rank as a master in the craft, with the simple inscription: "Here rests in God Friedrich Schmidt, a German stone-cutter." It will be remembered that Schmidt was originally a stone-cutter, and that his skill in designing detail has been attributed to his practice in executing it. After his death, his tomb was erected by the Corporation of Vienna, and his wishes were so far respected that his mason's mark was cut upon it, with the inscription which he had directed; but to this was added a list of his titles and official employments, while at the top of the stone stood the motto which distinguished his successful competitive drawings for the Vienna Town-Hall, "*Saxa loquuntur.*"

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SPANISH ARCHITECTURE.[1]—IV.

PLATERESQUE STYLE.

WE have already explained the origin of the term "Plateresque." This peculiarly Spanish style has made its influence felt outside of Spain nowhere except in Portugal There a few scattered monuments, among others the cloister of Batalha, bear its imprint.

The development of the Plateresque style dates from about 1440, and quite naturally its earliest productions indicate only a weak modification of Pointed art. For example, in the cloister of San Gregorio (Figure 27), at Valladolid, constructed by Macias Carpintero, the mouldings of some of the bases and shafts of columns are in the Pointed style, while the mouldings of the archivolts and cornices, the spandrels of the first-story arches and the decoration of the upper frieze already exhibit quite different types: the forms have a thickness and roundness not seen in ogival architecture. It is evident that this mixture must occur in a large number of structures, for the transformation from one style to another is always effected by slow and almost imperceptible changes. Thus, likewise, in the Casa de las Conchas (Figure 28), at Salamanca, the windows have Gothic mouldings, with crossed mullions; the ornamentation is, however, quite novel, and the doorway (Figure 29), with its sharply accused lintel adorned with palmettes and intertwining figures, its pediment with reversed curves, its tympanum richly carved with armorial bearings and their tufted appendages, offers no analogy to the doorways of the Gothic edifices which we have been studying. The same remark may also be made with respect to the disposition of the court or *patio* (Figure 30); the queer pillars and arches of the ground-floor, the string-courses, the open-work balustrades, the columns of the first story with their segmental arches, the upper cornice crowned with a rich open-work crest, can in no fashion be attributed to Pointed art. And here, too, we have the original features of Plateresque art, which in development and extension far outdistanced the only style having any points in common with it, namely, the Louis XII style in France. The *patio* of the Casa del Cordon (Figure 31), at Burgos, is surrounded by two stories of colonnaded porticos and possesses a very characteristic doorway. The enormous voussoirs of the lintel seem to be a survival of the massive wedge-shaped stones seen over the doors of Gothic seigneurial dwellings as, for instance, in the Count of Superunda's palace, at Avila, and the Casa de los Momos, at Zamora; but the general arrangement of the decorative elements, with a cable outlining, as it were, the main motive by circumscribing above the lintel a monumental inscription and the escutcheons and emblems embellishing it, is inspired from a new source and exhibits great originality.

This character of originality stands out still more prominently in the ornamentation of the Palace del Infantado, at Guadalaxara, where the vegetable element figures largely in the designs. There is such a wealth of carving, especially in the *patio*, such a profusion of sculptured plants and huge animals in bas-reliefs, of twisted columns and armorial bearings, that we are tempted to criticise the style as somewhat too pronounced. The façade, on the contrary, with its projecting bossages and beautiful doorway, together with the corbelling of the turrets which was inspired by the Arabian stalactite forms, presents an aspect of nobility and grandeur.

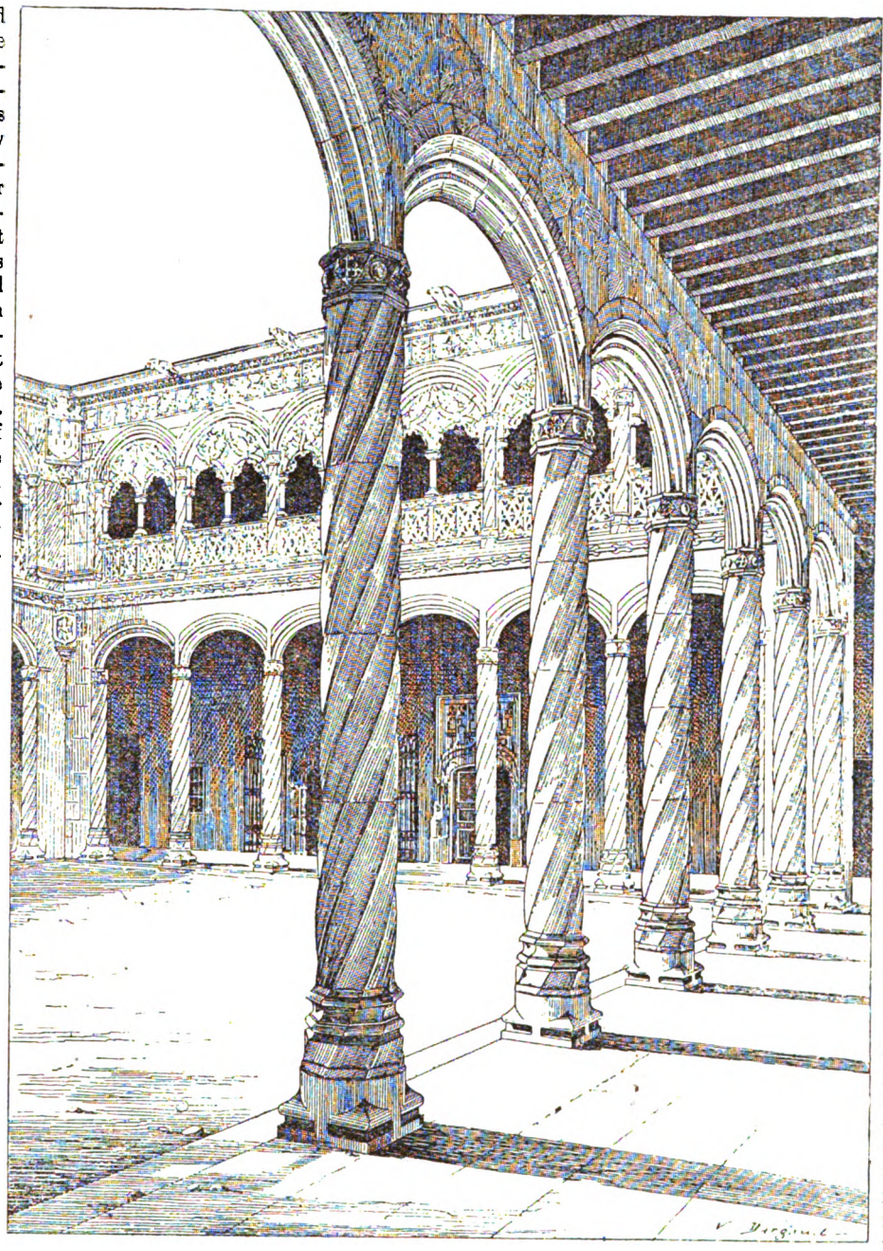

Fig. 27. Cloister of San Gregorio, Valladolid.

The Hospital of Santa Cruz at Toledo (1404-1514), constructed by Enrique de Egas, exhibits a peculiar disposition, examples of which are to be found in several Italian edifices. The chapel, or rather the church, runs across the rectangle formed by the general plan, so that the altar is visible from the four arms or aisles; one of these aisles is set apart for the religious order officiating at the hospital, two others are for the patients — one for the men, the other for the women — and the fourth is reserved for strangers and visitors: all these different classes of worshippers engage in the services, but cannot communicate with one another.

The great grille of the Capilla Real in the Cathedral of Granada, enriched with subjects executed in bronze and in relief; the choir of the Cathedral of Toledo, built by A. Berruguete and Philippe de Bourgogne; the cloister of the monastery of Lupiana, with four stages of superimposed porticos, two of which have wooden cornices and entablatures; the Casa de Zaporta, at Saragossa, with a *patio* embellished with baluster-like columns, and a projecting roof adorned with rafters and sculptured consoles; the grilles of the choir-enclosure in the Cathedral of Saragossa; the reredos at Nuestra Señora del Pilar in the same city, and numerous other celebrated altar-screens — for example, the one in San Nicolas, at Burgos —

[1] From the French of H. Saladin, in Planat's "*Encyclopédie de l'Architecture et de la Construction.*" Continued from page 163, No. 807.

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may all be cited among the most remarkable productions of this style.

The Plateresque was not merely the connecting link between the Pointed and Renaissance styles; it sometimes made use of delicate enrichments borrowed in part from Arabian art. The

Fig. 28. Casa de las Conchas, Salamanca.

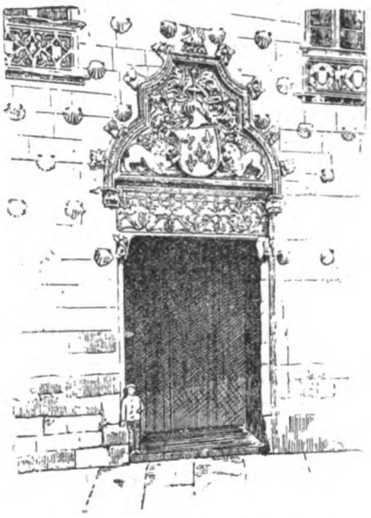

Fig. 29. Doorway of the Casa de las Conchas, Salamanca.

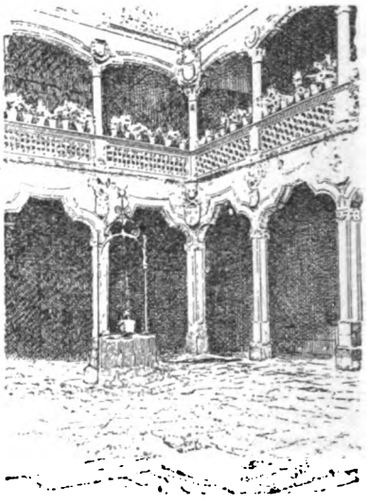

Fig. 30. Court or Patio of the Casa de las Conchas.

Puerta del Perdon and the Casa de Pilatos, at Seville, furnish well-known examples of this.

Under the influence of Cardinal Ximenes of Cisneros, in 1497, a number of remarkable monuments were reared at Alcala de Henares; these constitute some of the noblest specimens of Plateresque art. The archiepiscopal palace and the University, which were the work of P. Gumiel, architect of the high-altar in the Cathedral of Toledo, and Enrique de Egas, also derive their character in a measure from Arabian survivals. The ceiling of the great hall of the University, which is in octagonal or star-shaped caissons, with shells at the angles, may be considered as a Classic variation of an Arabian theme. The court, with arcades on the ground-floor and a portico with lintels around the first story, is also due to Arabian tradition, although the noble and delicate decorative details belong to the new style. The chapel of San Ildefonso, noted for its beautiful bronze grilles, is of the same period; it has fine Plateresque ceilings of Arabian inspiration, and contains the tomb of the founder, Cardinal Ximenes of Cisneros. The main façade of the University displays great breadth of composition, and deserves a brief notice here. The central motive is richly decorated: the entrance on the ground-floor is flanked by two small windows pierced in a broad, bare wall; in the first story there are three bays, the middle one of which is the most lavishly ornamented; above is an attic loaded with ornamentations, and bearing in the centre the arms of the kingdom, supported by the double-headed eagle with spread wings; the whole is surmounted by an open-work cresting, which produces a charming effect. The naked walls of the less elevated wings, which run off on either side of this motive, are soberly pierced with small openings. The grandeur of the whole architectural purpose, and the frankness with which it is presented, make this façade rival the façades of the palaces of Monterey at Salamanca and that of the Guzman family at Leon; the latter will be noticed later on.

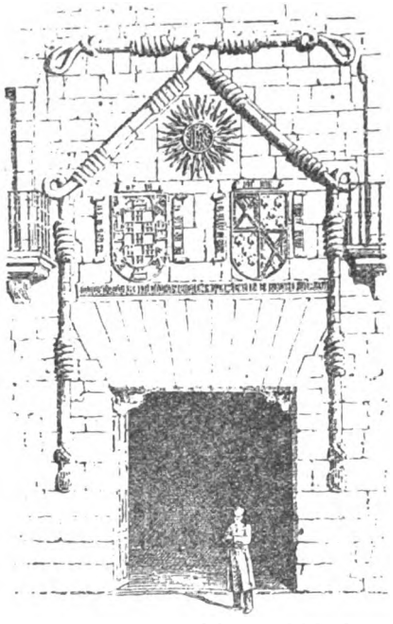

Fig. 31. Doorway of the Casa del Cordon.

Open-work crestings are found elsewhere at Salamanca (Alonso de Covarrubias, architect), as in an entrance-way near the University (Figure 32) and at the University itself (Figure 33), as well as in the palace of Monterey. They are derived from the Pointed balustrade, but are much more decorative, and possess great originality. We are indebted to our friend, the architect, M. R. Salleron, for all our illustrations of the monuments of Salamanca. In Figures 32 and 33 the architectural framework is seen defined by pilasters adorned with arabesques, in which nearly all the Renaissance elements

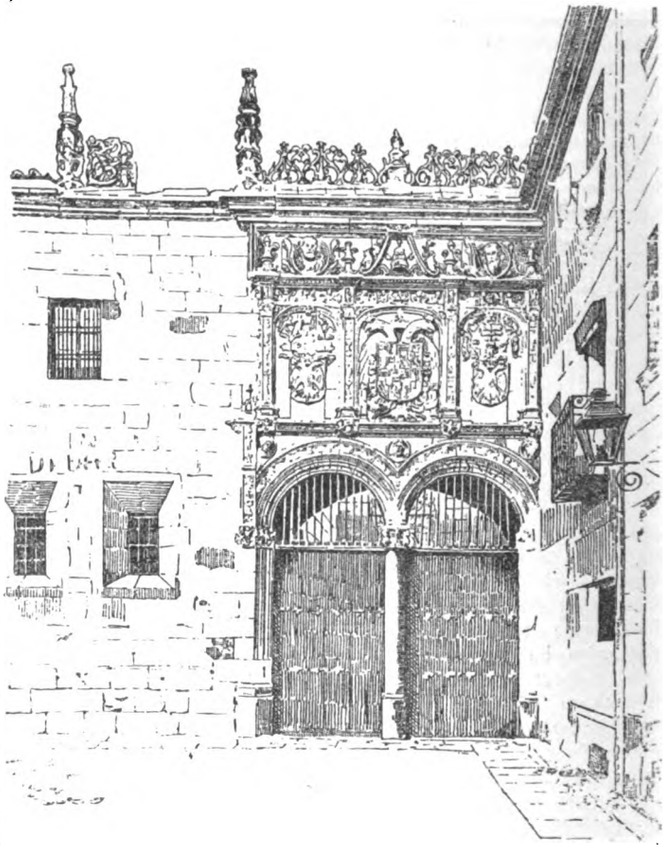

Fig. 32. Gateway near the University of Salamanca.

already appear. These elements are still more clearly discernible in the porticos surrounding the court of the Irish College (Figure 34), where the forms are almost entirely those of the French Renaissance (Francis I), and in the open arcades of San Esteban (Figure 35), the complex-ribbed vaulting of

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which presents, like that of other Spanish monuments already cited, a striking likeness to those English vaults which, at the springing, affect the shape of the bell of a hunter's horn cut in two.

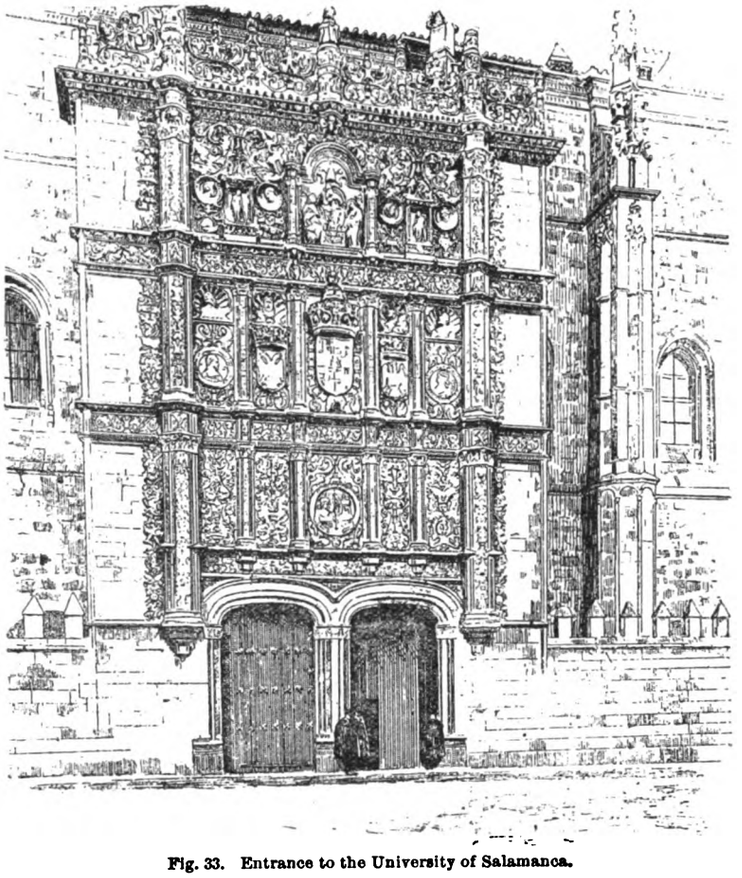

Fig. 33. Entrance to the University of Salamanca.

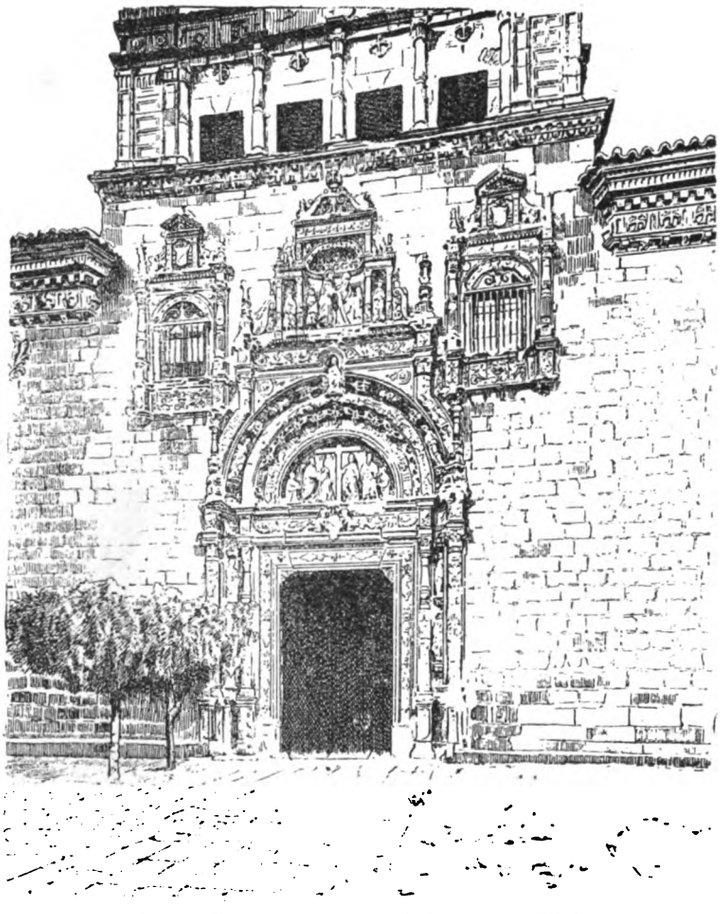

Fig. 36. Entrance to the Hospital of Santa Cruz, Toledo.

In the entrance to the Hospital of Santa Cruz at Toledo (Figure 36), of which we have already spoken, another step toward the Renaissance has been accomplished; and the

Fig. 34. Court of the Colegio de Nobles Irlandeses, Salamanca.

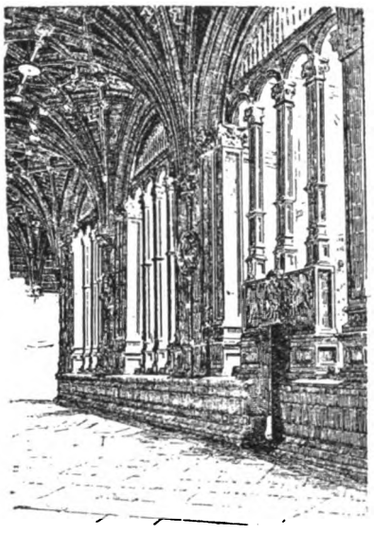

Fig. 35. Cloister of San Esteban, Salamanca.

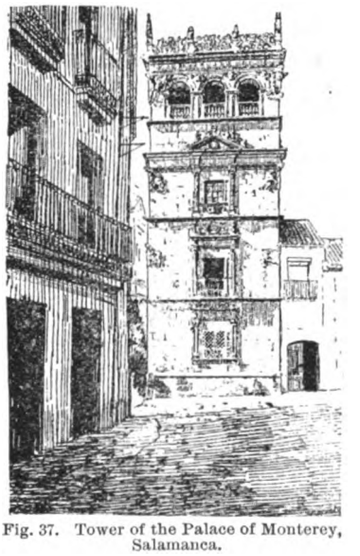

Fig. 37. Tower of the Palace of Monterey, Salamanca.

palace of Monterey, at Salamanca (Figures 37, 38), may be taken as a type of the edifices forming the last link between the Plateresque and the Renaissance, as the cloister of San

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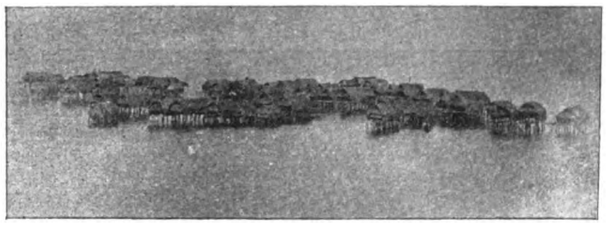
Gregorio, at Valladolid, furnishes the first link of the chain connecting the Plateresque with Gothic art. The Plateresque style was copied to a certain extent in Portugal, where it was

Fig. 38. Façade of the Palace of Monterey, Salamanca.

termed Emmanuelian, from the name of the sovereign to whose reign its entire development was confined.

[To be continued.]

THE MARINE DWELLINGS OF THE PAPUANS.[1]



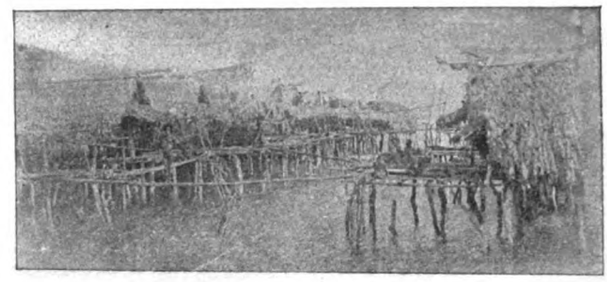
Papuan Village — from the Shore.

PAPUA, or New Guinea is, as every one knows, a large island lying to the extreme north of Australia, from which it is separated only by a narrow slip of sea. The Portugese, we are told, first sighted it nearly four hundred years ago; and then a Spanish captain returning to Mexico from the Moluccas, whither he had been sent by Cortes to extend the dominion of Spain — and to acquire incidentally such treasure as he could appropriate — sailed down its northern coast about the year 1528, and anchored in a gulf near certain islands, which he forthwith named *Islas del Oro*. Not because he found any gold there; but because gold, in those days of adventure, was ever uppermost in the imagination of the roving romantic Spaniard who sailed all seas and saw in every new land undreamt-of El-Dorados, and to whom every unnamed stream was a possible Fountain of Perpetual Youth, flowing from fabulous sources over sands which glittered with unregarded gems. Ten years afterwards Pizarro sent an expedition from Peru to the farthest Indies; but his ships never reached the Isles of Spice — being wrecked on shores inhabited by a people whom, as the survivors afterwards learned, "they in the Maluco do call Papuas."

A later Spaniard, deeming himself the first to discover it, called the land *Nueva Guinea*, from some fancied resemblance which he saw in the appearance of the natives to those on the African coast. Then Luis de Torres, after whom the straits are named, Tasman, Dampier, Cook, D'Entrecasteau and many more of lesser note visited the Island; but till within the last few years it may be said to have been practically unknown.

[1] See "*The Lake-dwellers of Venezuela*" in the *American Architect*, Nos. 770 and 774.

The Dutch certainly had made an attempt at colonization on the northern coast, but until Captain John Moresby, of H. M. S. "*Basilisk*," carried out a careful survey in 1873, the extent of the island and the outline of the south, and southeastern coasts had only been



A Street Scene.

vaguely surmised. Since then much has been done by D'Albertis, Bevan and others toward the exploration of the interior; and the establishment of the British protectorate over the eastern portion in 1884; the now important settlement at Port Moresby and the increased facilities afforded to travellers by regular steam communication from Sydney and Brisbane have combined to dispel in a great measure the mist of ignorance through which New Guinea has been regarded for the last three hundred years. But nevertheless, though it is after Australia the largest island, it is still, certainly, the least known of any country on our globe. The Germans and the Dutch, who have occupied the northern and northeastern parts, do little in the way of exploration; but the present British Commissioner, Sir William McGregor, is untiring in his efforts in this direction. His predecessor, Sir Peter Scratchley, fell a victim to the unhealthiness of the climate, which on the south and east coasts has proved so deadly to Europeans, that the British Government discountenances, for the present at any rate, all attempts at colonization. The white population is therefore still very small.

To Australian eyes, there is something very homelike in the scenery of New Guinea mixed with much that is altogether foreign. The soft, gray, mist-like effect of the forests of blue gum on the hill-sides is essentially Australian; but the feathery-fringe of cocoa-nut and other palms, which skirt the beaches, and the clustering native villages give a tropical air to the place which

Chief's House.

is entirely missing on the shores of the island continent. It is curious to note, by the way, that the cocoa-nut palm does not grow

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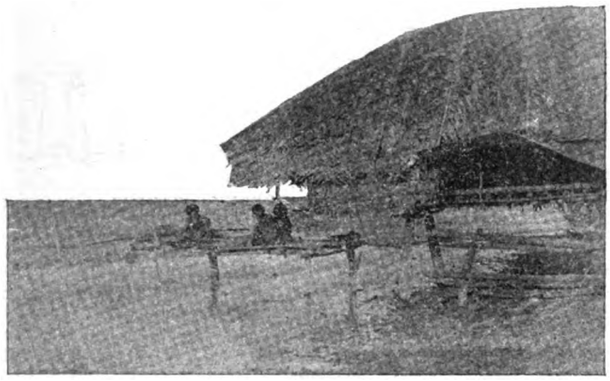
on the Australian coast, while less than ninety miles away across the narrow shoaling strait it flourishes everywhere.

Nearly all the Australian fauna and flora are indigenous to New Guinea, but it has in addition the more luxuriant growths and the more brilliantly plumaged birds of the equatorial regions.

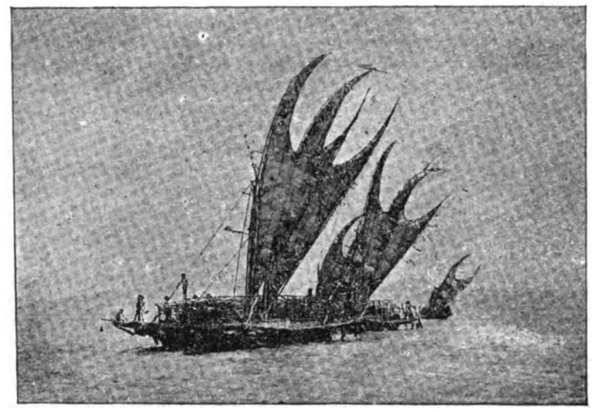
Almost the first objects which appeal to the curiosity of a stranger entering Port Moresby, are the large trading-canoes, called by the



Afternoon Lounge.

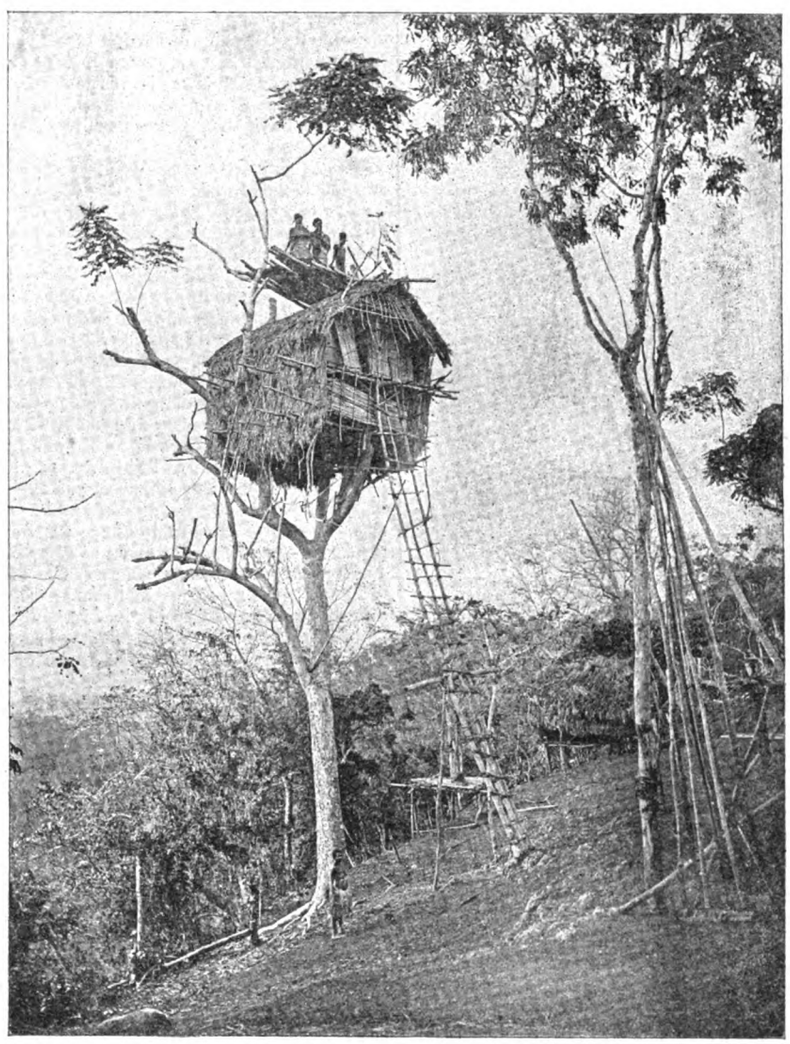
natives *lakatois*, with their graceful and strange-looking mat sails and long streamers of dyed grasses fluttering, like pennants, from their mast heads. These trading-canoes are merely two or three ordinary canoes lashed together with rattans and decked over with bamboo and pandanus leaves. The sails are sometimes square, not unlike the small sail of a yawl, but for the most part they are elliptical as shown in the accompanying illustration. Unwieldly though these boats may appear, they seem to sail well and speedily and, from the fact that the natives undertake voyages of three and four hundred miles in them, they are evidently sea-worthy. The "trade" generally consists of a rude kind of pottery, which the women excel in making, and body ornaments which they exhange for sago, sweet-potatoes, taros, and betel-nuts, etc. Betel-nut chewing is practised all over the eastern portion of the island and was probably acquired from the Malays, as was the mode of house-building. The people in this locality, differ very much in appearance from the real Papuans who dwell in the west and who are a tall and powerful black-skinned race, whereas those in the south and east are a small and light-bronze-colored people, who wear their hair frizzled out like a large mop, ornamented with bands of cowrie shells and dogs' teeth. The Papuans of the west, on the other hand, usually shave their heads and wear wigs so artistically constructed that it is difficult to discover the fact. The term "Papua" is supposed to be derived from the Malay words, *pua-pua*, meaning curly or frizzy, which was first applied to the natives on account of this peculiar mode of arranging their hair.

The houses of the natives, even on the hillsides and far inland, are almost invariably built upon piles, after the Malay manner. The advantages of this curious and troublesome method of construction are apparent in the villages along the coast, but the builders themselves seem unable to give any adequate reason for adhering to this singular type of habitation in the interior. It would appear that at a far remote period wandering tribes from some of the myriad islands of the north and east, settled on the coast of New Guinea, and being well acquainted with the Malay method of building, erected these



Trading-canoe.

marine houses in order that escape in their canoes might be possible in the event of a successful attack being made upon them by the savage and resentful natives. Then, in the course of time, as they worked their way inland, the descendants of these aliens, though living under entirely different conditions, constructed their houses in this manner because their forefathers had done so, and for no other reason. This explanation, however, though generally accepted, is not altogether satisfactory; for while the houses built wholly or partly in the water are all of much the same type, those in the different localities on shore vary so greatly in form, that it is hard to believe that a people who could so adapt and improve the primitive dwelling, and who are very much averse to doing more work than they can possibly help, should blindly and laboriously follow a precedent for which no reason can, in their case, exist.



Tree-house, Korari Village.

The marine villages, however, with which we are now chiefly concerned, are clustered along the coast in every sheltered bay and, as I have previously said, they differ so little in appearance and construction that a description of one may well serve for all.

The piles upon which these houses are framed are rather slight-looking unwrought saplings which are roughly pointed and driven into the sand at low water, and vary in height from about ten feet to twenty-five feet above the water-line.

On these piles a rough floor is laid which is, like the framework of the house itself, lashed to them, and the whole clumsily braced. An opening to serve as doorway is left at each end, and a rude veranda constructed on the water-front; the high-pitched roof and the sides are then covered with a thatch made either of long grass or palm leaves; a few ornamental features in the shape of finials, etc., are, perhaps, added; a ladder fixed at each end, and the house is finished.

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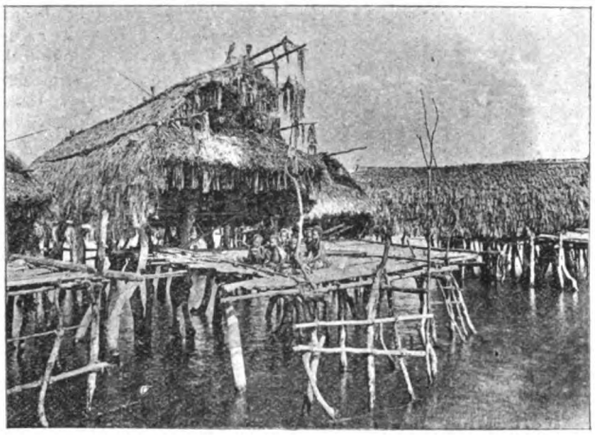
The proprietor then proceeds at his leisure, in some localities, to decorate the exterior of his strange abode with strings of cowrie shells and trophies of grinning heads of the enemies he has slain — and perhaps eaten. Blanching human bones arranged in various forms are also considered to add to the general effect, and serve, besides, to proclaim the owner's prowess as a warrior.

Each house is merely one apartment, used in common by men, women and children, and as no provision is made for light and ventilation, beyond the openings at either end, and as chimneys are unknown and a fire for culinary purposes generally kept burning on a stone hearth in the centre of the floor, it may be imagined that the interiors are not too airy or wholesome.

In the western part of the island, it is said the houses are capable of accommodating many families: one visited by Mr. Chalmers, the missionary, "was 160 feet long, and it had a large peaked portico 30 feet wide, supported by posts 80 feet high." These large houses are not found to the east of Torres Straits. All the houses about Port Moresby, however, are swarming with natives — the men quite naked, and the women and girls dressed only in a short petticoat of palm leaves, no longer than the abbreviated skirt of a ballet girl, though of a less diaphanous material. Both men and women wear armlets and necklaces of pearl, shell and a long-pointed piece of shell through the nose. The women do nearly all the work, while the men fish or hunt when so inclined, or attend to their plantations; for though some of the villages stand at a considerable distance from the shore and are wholly surrounded by the sea, the majority are built on the shore itself, and are very often almost high and dry at low tide. Dogs and pigs, both indigenous to the island, abound in all the shore-side villages, and on the hills they abide with the other live-stock in the open space beneath the floors of the houses.

I should have remarked that no iron or other metal is used in the construction of these houses, the natives' only tools being knives and



Chief's House, Marine Village.

axes made of a coarse kind of green stone. Nails are, of course, unknown, the timbers being simply lashed together with tough vines and pieces of bark. The benighted Papuan is — or rather was till very lately — still living in his "age of stone." Captain Moresby relates that some of the tribes he visited in 1875 had no knowledge of the use of iron, but were willing to exchange their stone axes and adzes for strings of red beads in preference to the iron implements which were offered them.

The natives are uncleanly in their habits, and subject to many forms of skin diseases; and there are very good reasons for supposing that those at least, in the southeastern portion of the island still indulge in occasional cannibalistic orgies. It is singular to note that the habit of smoking tobacco, which prevails throughout the island, was practised on the south coast long before the advent of the white man.

Though the title of this paper precludes more than passing reference to them, one can hardly take leave of New Guinea without mentioning the extraordinary tree-houses of the interior. These houses are very similar to those already described, though somewhat smaller, and are all of two stories in height. A platform above the ridge serves as a lookout — from which the tree-dweller may observe the approach of his enemies.

The houses of the chiefs, whether marine or otherwise, have generally some distinguishing features, and many fanciful forms are indulged in; the most common, and perhaps the most peculiar being an erection in the shape of a spire over the principal entrance.

Anything more lovely than some of the scenery on the New Guinea coast, between Port Moresby and South Cape, would be difficult to imagine, and some of the islands off the shore are veritable

"Summer isles of Eden lying in dark purple spheres of sea";

but the climate, strange to say, is deadly to Europeans, from the malarial-laden breezes which blow across the marshlands of the coast.

To one, the greater part of whose life has been passed in the din and dust of a city, it is a pleasant memory to look back across the intervening years to the happy weeks spent in cruising along the coasts of this strange land. He has but to close his eyes to see again the sparkling sapphire of the sea outside the soft, fleecy line which marks the coral reef; the green translucent waters within the bay; the picturesque canoes; the strange, frail-looking villages; the stretch of glittering sands and waving cocoa-palms, with the gray greenness of the hills for background; and above and beyond all the great Owen Stanley range, looming up vast and vague in the farthest distance. The fear of fever, the infinite torment of flies and mosquitoes and the other minor drawbacks to life under a tropical sun have long since been forgotten. J. B. B.

CANADA

THE McGREEVY SCANDAL. — ANNUAL SESSION OF THE ROYAL SOCIETY OF CANADA.

THE parliament of the Dominion of Canada had not long been engaged with its 1891 session, when a new member, returned to parliament for this very purpose, brought up the matter of the "McGreevy Scandal," and after reiterating the charges, demanded a special committee to take up the affair and sift the charges to the bottom. The allegations are that Mr. McGreevy used his political influence for securing contracts to certain contractors and was paid handsomely for so doing; these contractors were not the lowest tenderers and thereby it is claimed the treasury was robbed, and that the Minister of Public Works was a party to the fraudulent transactions and possibly a sharer in the plunder. Mr. Tarte, the member, a newspaper editor of Quebec, has for a long time been showing-up the supposed fraud in his paper and with such success as to form himself a party who returned him to the House where he might make, and has made, his charges. The case is one of unusual interest: the charge amounts to this — that fully three-quarters of a million have been taken from the Treasury under the eye of the Minister.

The Royal Society of Canada, founded in 1882 by the Marquis of Lorne, then Governor-general of Canada, has been holding its annual session this year in Montreal. Hitherto the Society has remained in Ottawa, but last year it was determined that if a formal invitation were extended to it from any city of the Dominion, the Society should avail itself of it. The Natural History Society of Montreal was the first to give an invitation that could be accepted, and the result has been that the Society went to Montreal and held its annual meeting beginning on the 27th of May. The object of this Society is stated in its official papers, as being "the promotion of literature and science within the Dominion." The membership is limited to eighty and restricted to residents in Canada or Newfoundland. There are two departments, literary and scientific, subdivided into four sections. The first section is devoted to French literature and allied subjects, the second to English literature, etc., the third to mathematical, chemical and physical sciences, and the fourth to the geological and biological sciences. An annual grant is made to this Society by Government of five thousand dollars, for the purpose of publishing the results of the researches made as given in the form of papers which are read at its meetings, whereby the benefit of these researches is diffused. It is a curious fact that the English-literature section has hitherto been weak and ineffective, and has consequently done little and has little to show, but the other sections are doing well and the Society is being gradually felt to be of great service to the State. That a section devoted to English, in a English country, should fail in its work, is a matter that very decidedly needs correction.

The report of the Council contained an account of the work that had been done at the instance of the Society with reference to determining the exact longitude of Montreal. The position of Montreal has heretofore been determined by Harvard, but as doubt has been thrown upon the supposed position of Harvard, it is, of course, uncertain what the position of Montreal really is. It is a matter of great importance and the Marine Department of Government is especially interested. To arrive at a proper conclusion it has been necessary to enlist the services of the Imperial Government and to obtain permission for the coöperation of the officials of the Royal Observatory at Greenwich. The British Government has seen the force of the arguments in favor of the work and a grant of £650 (sterling) has been made for the expenses by the Imperial Treasury. The assistance of the Royal Observatory at Greenwich has been granted, with instruments and observers. In addition to this the Canadian Pacific Telegraph and Cable Company has offered the free use of its wires for the purpose and the aid of the McGill University, Montreal with instruments and observers, has also been promised. It only remains now that the Dominion Government should grant the sum of $2,000 to meet the expenses of new and necessary instruments. This will, no doubt, be voted, and the work will proceed without further delay.

This annual meeting of the Association has proved in everyway very successful. A large number of American gentlemen were present as representatives of, or delegates from various societies in the

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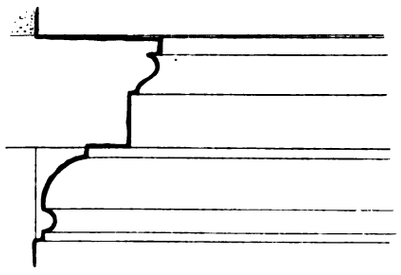

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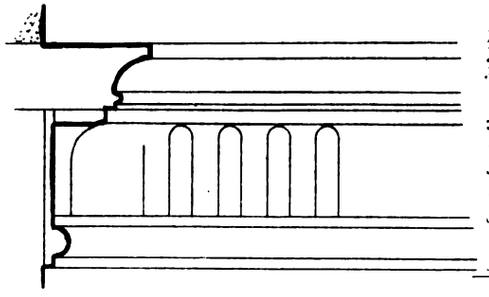

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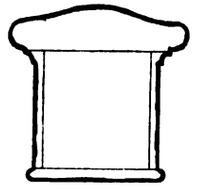

·FRONT STAIRS·
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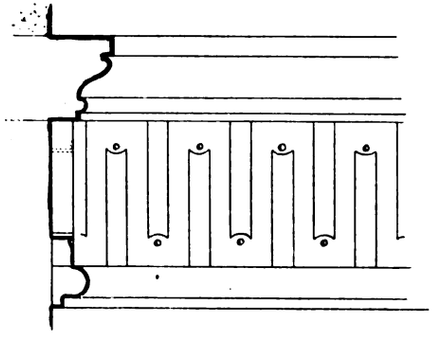

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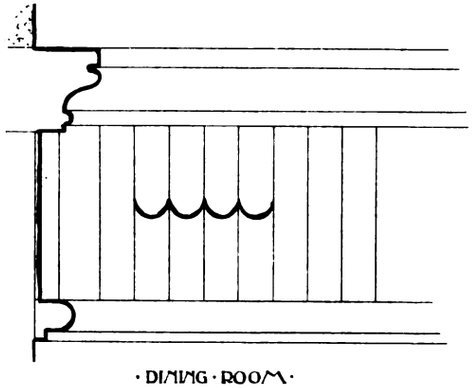

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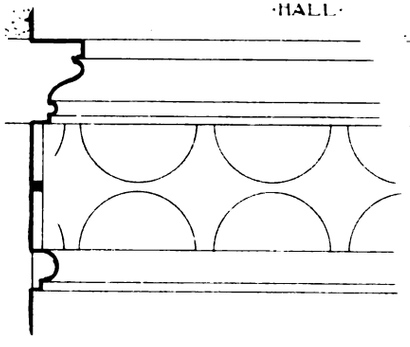

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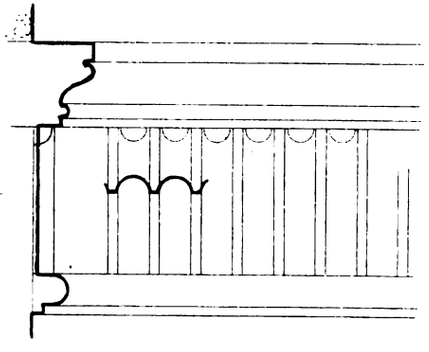

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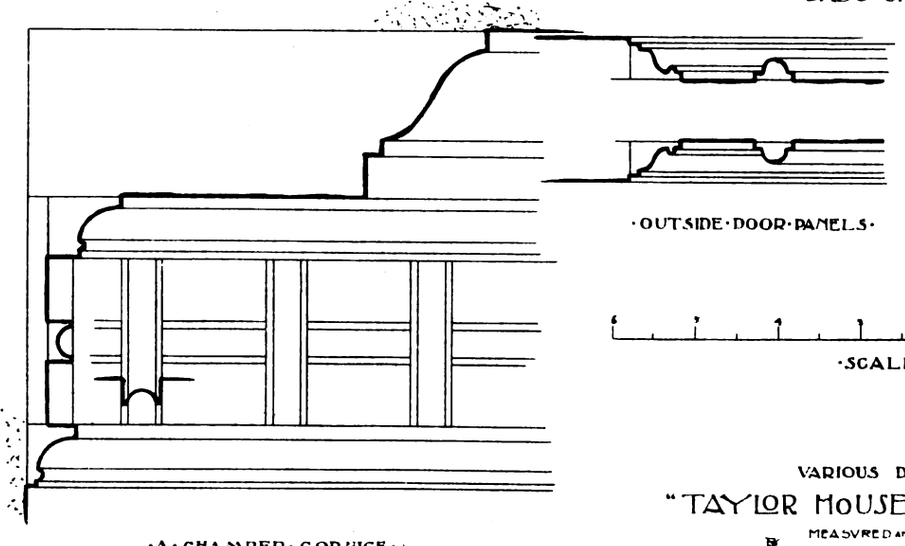

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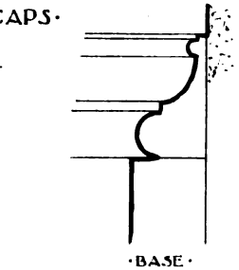

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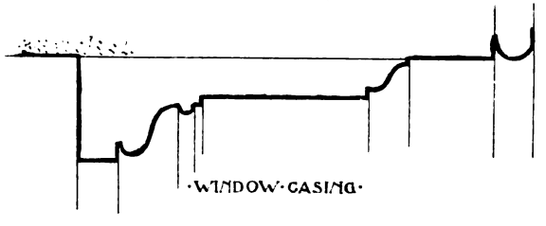

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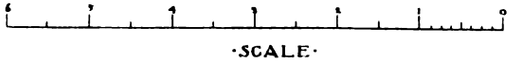

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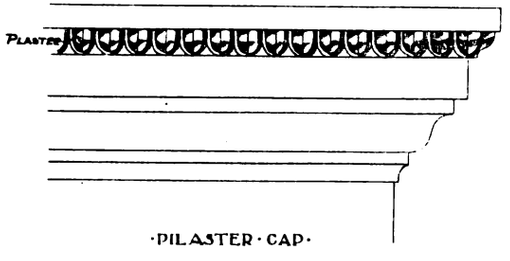

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VARIOUS DETAILS·

"TAYLOR HOUSE", ROXBURY.

MEASURED and DRAWN
BY
WILL S. ALDRICH·

·MAY·1890

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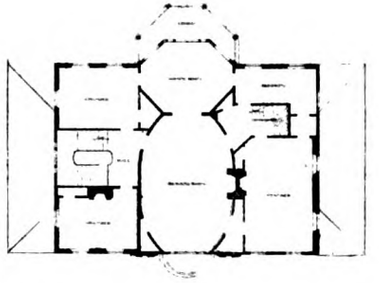

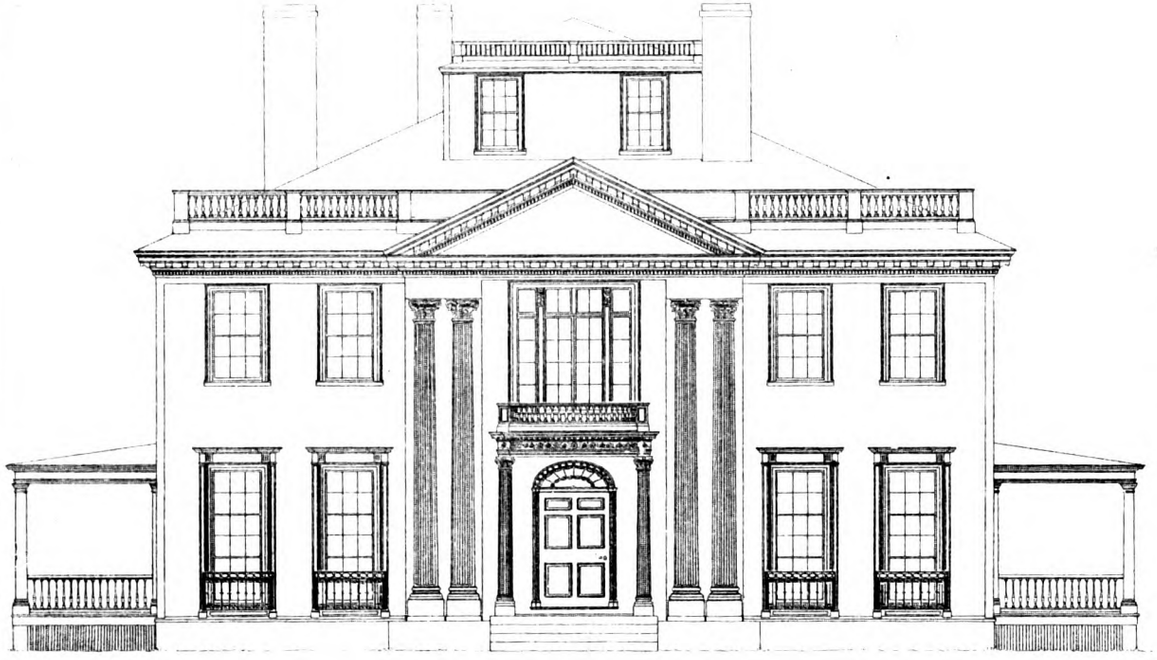

FRONT ELEVATION

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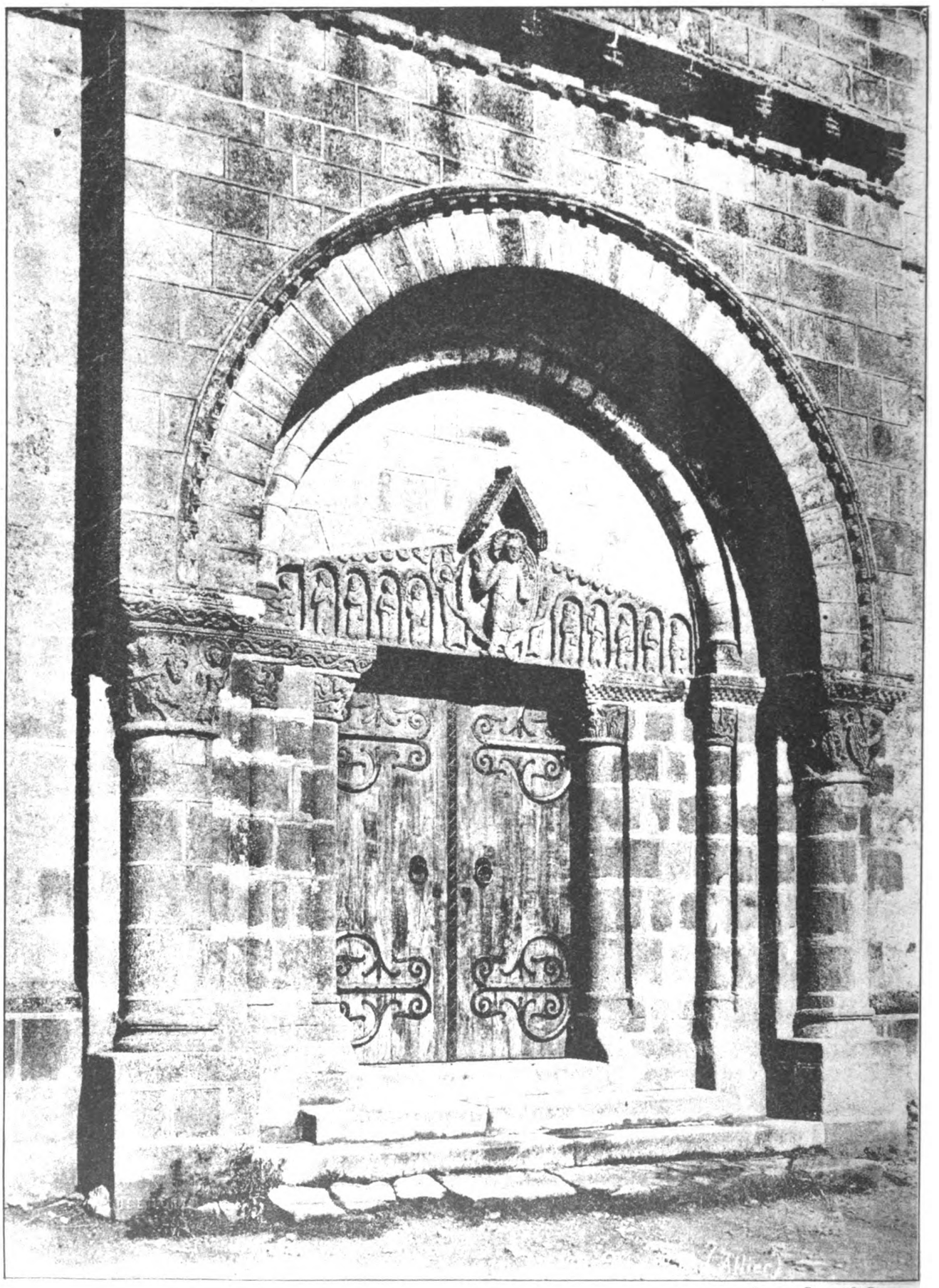

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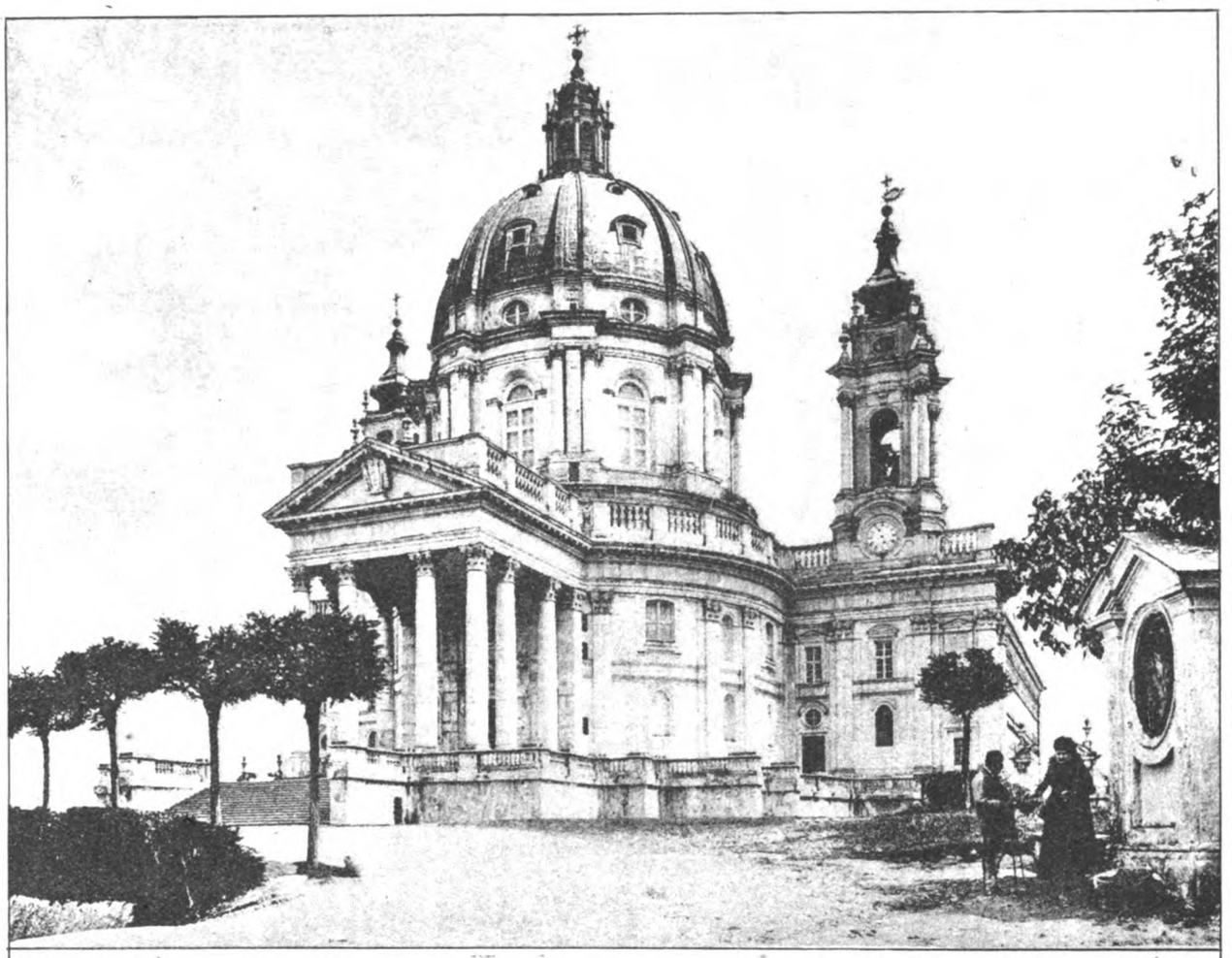

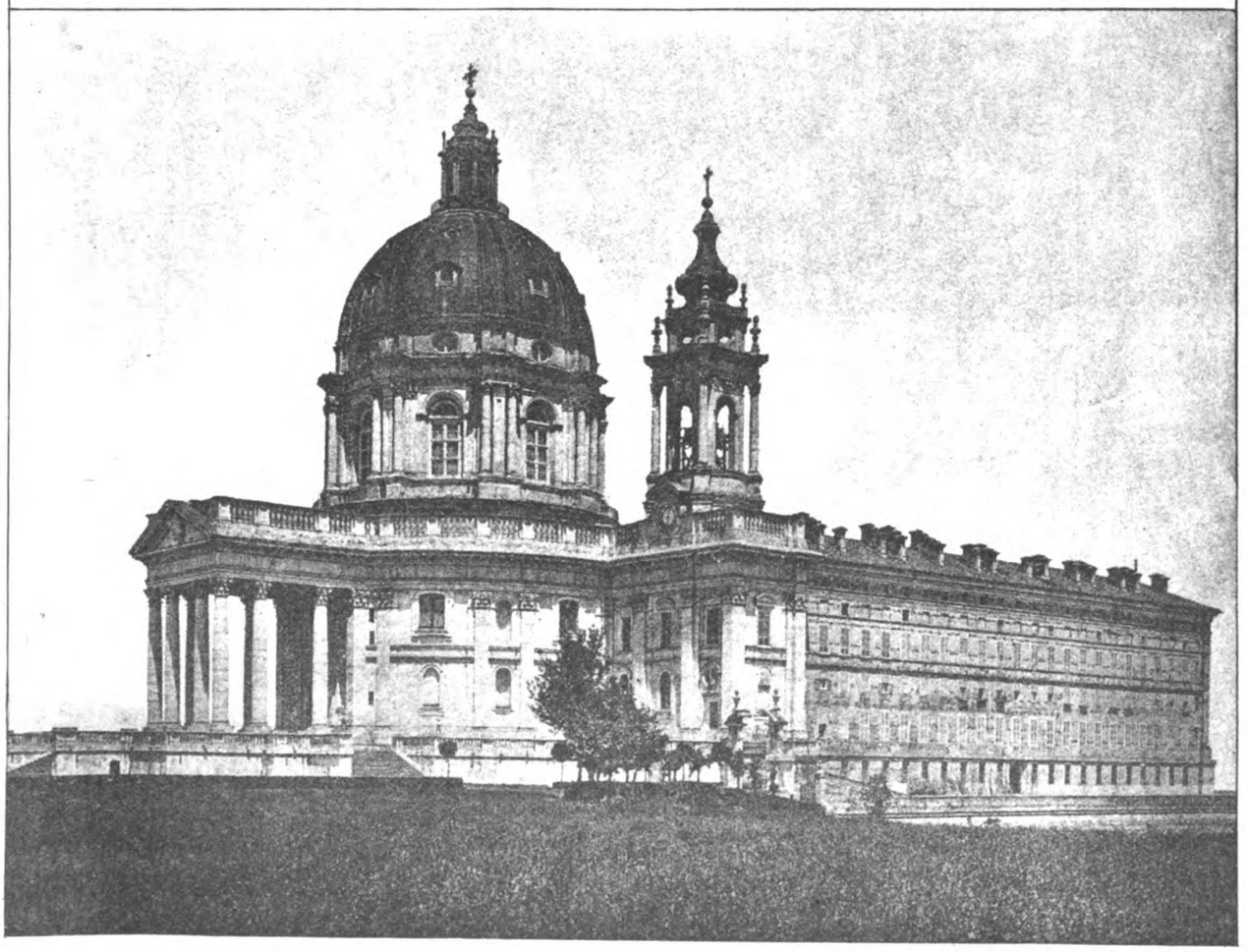

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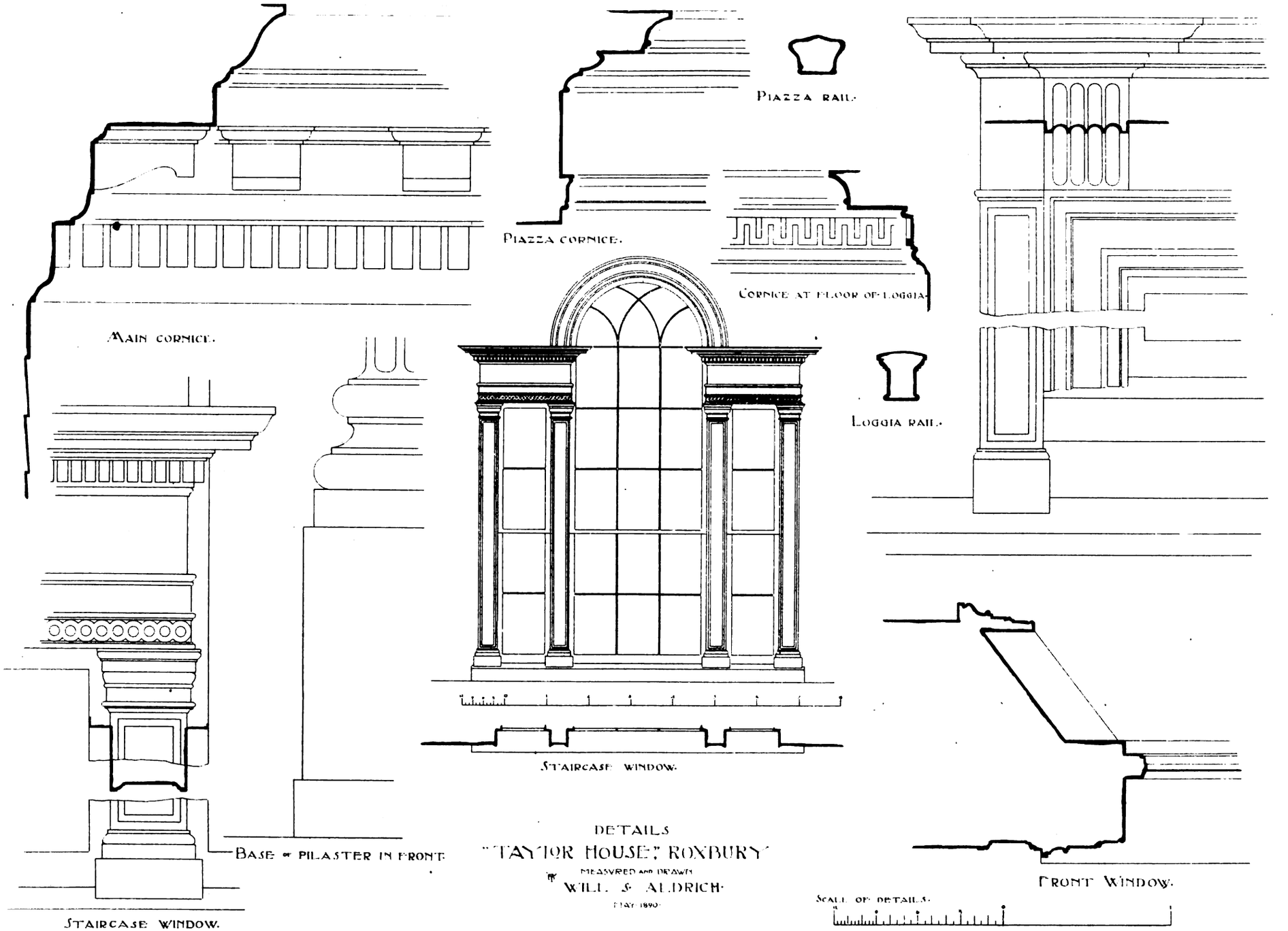

DETAILS
"TAYLOR HOUSE," ROXBURY

MEASURED AND DRAWN
BY
WILL S. ALDRICH.
MAY 1890.

HELIOTYPE PRINTING CO. BOSTON.

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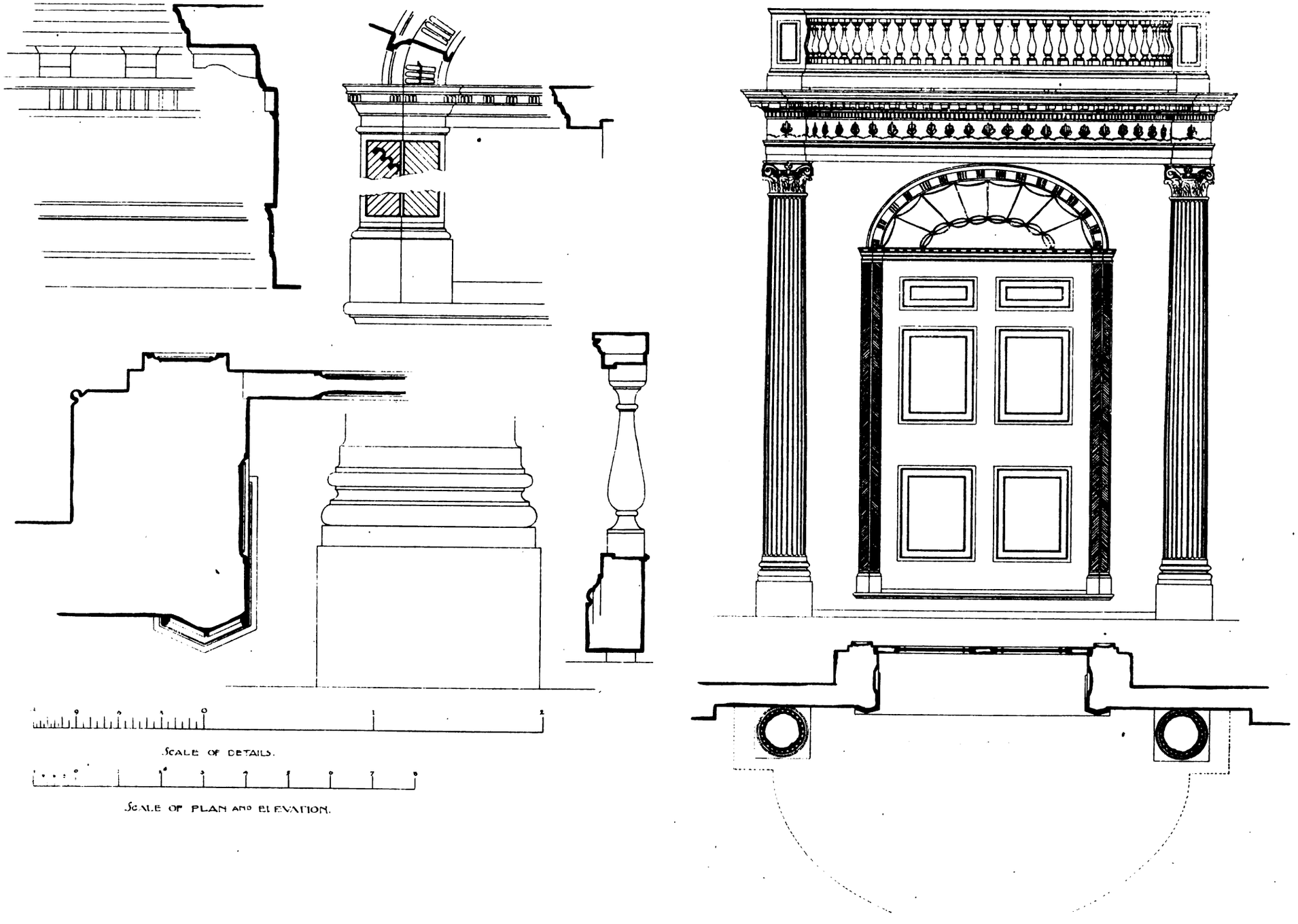

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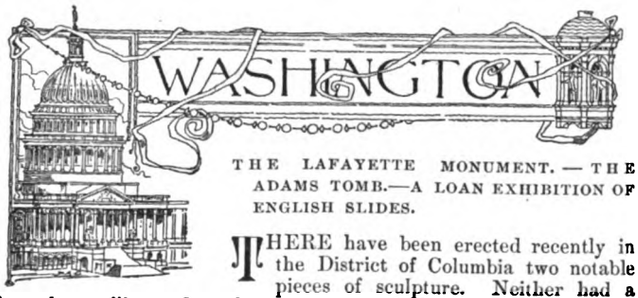
States, among whom were Major Powell, Director of the Geological Survey, Professor Prescott, of Ann Arbor University, representing the American Association for the Advancement of Science, Mr. Williams of St. Paul, Minnesota, representing the Historical Society of that city, and General F. A. Walker, representing the National Association of Science, the American Economic Society and the American Statistical Society. The morning of the 28th was devoted to the reception of delegates from all parts of Canada and many parts of the United States. Public lectures were given in the evening and the Society was entertained at receptions by various scientific and artistic societies, the rest of the time of the three days' session being taken up by the reading of papers in the different sections.

An invitation was received from the Corporation of Toronto to hold the next annual session in that city, and the matter was left with the Council to decide.

The election of officers for the ensuing year resulted in the establishment of Abbé J. C. R. Laflamme, D. D., M. A., of Laval University, Quebec, in the Presidential Chair; Mr. J. G. Bourinot, C. M. G., LL. D., D. C. L., Ottawa, was made Vice-president and Dr. Hoffman of the Geological Survey, Ottawa, Honorary Secretary.



THE LAFAYETTE MONUMENT. — THE ADAMS TOMB.—A LOAN EXHIBITION OF ENGLISH SLIDES.

THERE have been erected recently in the District of Columbia two notable pieces of sculpture. Neither had a formal unveiling. One, the monument to Lafayette, did not receive a dedication to the public on its erection, because no appropriation for the purpose was made by Congress. The Adams tomb, as a token of grief erected in memory of a departed beloved one, required no public ceremony at its erection. The commission first had the base for the Lafayette monument built in the park of the same name, on a line between the White House and Andrew Jackson's statue (on the rearing horse) by Mills. This incensed the friends of the hero of New Orleans and, at the last moment, after a large part of the base was finished, Congress required the commission to change the position of the structure; so the bronze pieces of which the statue was composed were kept for months awaiting their final resting-place. At last they have been erected in Lafayette Square on the corner of Pennsylvania Avenue and Madison Place, one of the most conspicuous points in the city. The Adams tomb is erected in Rock Creek Cemetery, which adjoins the Soldiers' Home, a retired and quiet spot.

The Lafayette monument was modelled by two of the most prominent French sculptors. The single figure on the Adams tomb was from the hands of the foremost American sculptor, St. Gaudens.

The first has a rather florid Renaissance marble pedestal, a little small, apparently, for the figures which are grouped about it. The whole resting on a simple terraced granite base.

The second has a slab of red granite rising up behind the figure as a severely classical background, while facing the figure is a settee forming three sides of an octagon, cut from the same kind of stone. The lonely figure sits on a rough, dull-gray granite boulder, its edges rounded by time or the elements.

In the French sculpture the base was designed by the sculptors, in the American example the stone surroundings were designed by an architect, Mr. Stanford White. The effect produced shows the advantage of architect and sculptor working together in monumental work.

The Lafayette Monument is the most ambitious effort of the kind in the city of Washington, grouping together, as it does, five historical, and three ideal or suggestive characters in one harmonious group. The Adams tomb has one sad, lonely figure.

Lafayette, on the top of the pedestal, and his four friends just beneath him are typical French gentlemen of their period, graceful, dignified, polite. They are natural in their poses and presumably good likenesses of the patriots represented. At the base is a female figure handing a sword to Lafayette. The figure is full of action and life. In the case of this figure the stonework is apparently deficient, as the figure gives one the impression that it might slide from the ledge on which it is supported. Many comments are made on the apparently abnormal size of the heads of the two cherubs. They may be properly proportioned, but they certainly convey a disagreeable impression. The monument as a whole is decidedly the most successful piece of outdoor sculpture we have yet had in the city; the figures are natural, the grouping is good, and the effect of the whole is pleasing, and I think the effect will be lasting.

The figure at Rock Creek Cemetery sits alone on a gray granite boulder. The figure droops slightly, the limbs are relaxed, it is draped in a coarse mummy or sackcloth sheet which is drawn around the figure and over the head in the form of a cowl. The bare arm and the face resting upon the hand are the only portions of the body exposed, the eyes are half-closed, looking down towards the grave. This piece of sculpture produced a greater effect upon me than anything of the kind ever has done before. Its sadness is touching and not to be erased from the memory. It is an image of tearless, hopeless grief.

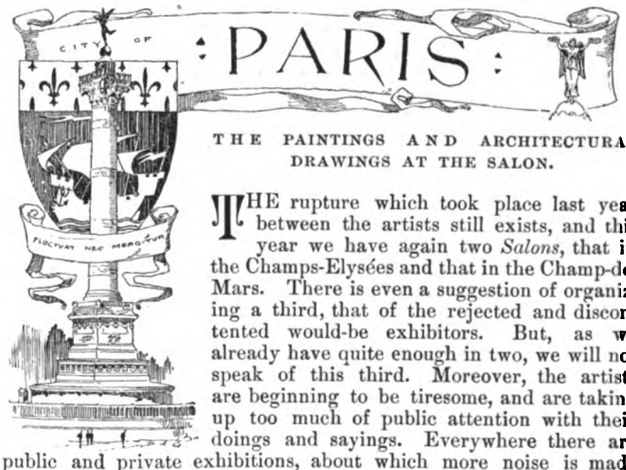
Mr. J. R. Robinson, of Dublin, kindly sent the Washington Chapter American Institute of Architects, more than a hundred lantern-slides, which were taken by him during one of the summer excursions of the Association of Architects. The most interesting art and architectural subjects, as well as many and various groupings of the members of the Association are photographed and preserved for future use, reference and instruction, and by the kindness of Mr. Robinson, they have been both pleasurable and profitable to the Chapter in Washington. A description of this excursion, and reproductions of many of the cuts may be found in the London *Builder*.

These slides were exhibited in the hall of the Cosmos Club, on the regular meeting night of the Chapter in June. Although taken by an amateur, the views were in every way equal to professional work. The illustrations were taken in Oxford and its vicinity. The domestic, school and church architecture of this portion of England was realistically shown on the screen. Oxford and its many colleges, New, Merton, Christ Church, Magdalen and St. John's, etc., with their churches, libraries, the cathedral and private houses were all well shown. The interiors of many of the buildings were illustrated, the tower and doorway to Magdalen, and views of Christ Church Colleges, the windows in St. John College Chapel, the Bodlein Library, etc.

The many interior views of the Cathedral were particularly interesting among the views from Oxford. The doorway, with its twisted columns, broken scroll pediment, with niched pediment inserted, was a fine example of the exaggeration to which Classic architecture was debased in Renaissance times, and a warning to modern architects who are revivifying this style.

In the vicinity of Oxford, Iffley, Dorchester, Burford, Kidlington, Water Eaton and other places of interest were visited and photographed. The Kidlington, Burford and Iffley Churches and the Evesham detached tower were particularly notable. The north doorway of the Iffley Church is a very interesting and good example of a Norman Gothic doorway. The Asthall manor-house and small church showed the very happy effect produced by quiet simplicity in treatment. The combination of scenery, church and manor-house produced a charming effect as a whole. The Kidlington almshouse and old houses at Evesham are very picturesque. Last, were illustrations of Shakespeare's house, the grammar-school and church at Stratford-on-Avon.

Professor Gore of Columbian University, who is familiar with this section of England, gave a descriptive talk in connection with the Exhibition.



THE PAINTINGS AND ARCHITECTURAL DRAWINGS AT THE SALON.

THE rupture which took place last year between the artists still exists, and this year we have again two *Salons*, that in the Champs-Elysées and that in the Champ-de-Mars. There is even a suggestion of organizing a third, that of the rejected and discontented would-be exhibitors. But, as we already have quite enough in two, we will not speak of this third. Moreover, the artists are beginning to be tiresome, and are taking up too much of public attention with their doings and sayings. Everywhere there are public and private exhibitions, about which more noise is made than they generally deserve.

The *Salon* remains, as always, the most interesting artistic manifestation, and cannot be neglected. This year it presents matters of real interest. The works received are less in number, and we have only to examine 1,773 pictures — quite enough; but be assured I will mention only those which deserve attention, or which, by their importance, stimulate discussion and criticism. This task will be quite enough, for there are many good things this year. It is pretended that the jury was more strict than usual. It could have been still more so. But we ought not to complain, as absolutely bad pictures are rare.

First, let us examine the grand compositions which the modern artists inflict on us only too often, and of which the *Salon* this year offers some interesting examples. We will begin with the colossal work which M. Rochegrosse exhibits under the title "La Mort de Babylone." This is an immense picture of almost equal breadth and height. It represents the interior of Belshazzar's palace, who, besieged in Babylon by Cyrus, King of the Persians, forgets, in the midst of his festivities and debauches, the tiresomeness of the siege. Upon divans, in languorous attitudes, slumber nude, or — very slightly clad — females beside men brutalized with drink. Here and

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there are scattered rugs and hangings of brilliant colors, flowers, fruits and half-eaten food. It is the close of an orgie. The door at the end of the room opens before the troops of Cyrus, who has just taken the city by surprise. A woman awakes, sees the danger and springs up in terror. At the left, at the top of the staircase leading to the throne, Belshazzar, surprised and terrified, feels lowering over him the image of Death, whose physical presence the painter makes visible. The lights placed on the backs of twelve little lions, ornamenting each end of the steps to the throne, flicker and pale before the blue light of the springing day, which enters through the great arcade in the background. The whole painting, arranged like an apotheosis at the opera, is a real archæological restoration, and pictures the splendors of that feast which has remained one of the most celebrated of ancient history — the feast of Belshazzar, which formerly tempted the brush of Rembrandt. This picture of M. Rochegrosse's is the work of a great artist. There are in this colossal canvas, upon which he has labored for three years, as they say, and which must have called for very serious study and research, qualities of the first rank. Here are to be found a quantity of pretty details — female bodies ravishingly modelled. The one on the right in the penumbra is placed against a scheme of color at once fine and charming, while in the group at the left the flesh-tones gleam under a brilliant light. The *ensemble* has great depth and relief, and the painting is called a great success. It must be acknowledged that a certain confusion is apparent at the first view, and some of the postures of the women are a little equivocal — of one, especially, very strongly lighted, who wears no other costume than a garland of roses, which is very indiscreetly misplaced. But in spite of the easy criticisms which so important a work perforce suggests, the painting has indisputable interest, and indicates a temperament in the artist that is far from commonplace. Considering the youth of M. Rochegrosse, it may be hoped that his name will long remain in the history of the art of our time. "La Mort de Babylone" is more than a promise, and M. Rochegrosse will find that in it he has given a pledge for the future.

The most important painting after this one is signed by M. Jean Paul Laurens, and has for title "La Voute d'Acier," an episode of July 17, 1789. The King, Louis XVI, is ceremoniously visiting the Hôtel de Ville. At the foot of the steps of the main entrance the King is received by Bailly, the Mayor of Paris, who gives him the tri-colored cockade. The King affixes it in his hat, and begins to mount the steps. Upon each side of him on the steps are arranged the sheriffs of the city, who at this moment draw their swords and form with their blades a vault of steel, under which the King shall enter. Such is the subject of the picture. The effect is cold and without grandeur. The tonality is clear, but of a uniform effect, in spite of the opposition made by the brilliant costumes of the King and the noblemen of his suite with the dark garments of Bailly and his sheriffs. The chief personage, the King, is well in view, but the composition lacks balance. The left side is overloaded with figures, but the right is taken up only with the steps, which, in the foreground, form very hard and dry lines, which one would prefer to have somewhat concealed. In short, much talent is displayed, but unequally distributed.

The composition of M. Henri Martin is serious in quite another way, and we speak of it only because of the insistence of certain critics, who wish to force from us admiration for an incomplete and weak work. "A Chacun sa Chimère" represents a cortége of men conducted across a desert by the winged genius Illusion. It is an illustration of that phrase of Baudelaire:

"*Ils allaient avec la physionomie résignée de ceux condamnés à espérer toujours.*" And, in truth, they do go, enveloped in a cloud of dust, each one bearing his chimera. This conception of Boudelaire's is pretty enough. The artist has made an enormous sketch of it, in which are discovered certain qualities of air and light, but it is disagreeable to look at, and the greatest illusion of all these personages would be to believe that they had been drawn. Their boneless bodies are supported on limbs that have no muscles. Not one of these wretches has even a toe, and the hands are no better indicated. In short, all the difficulties of drawing are shirked. As we have said, it is only an enormous sketch, and we protest vehemently against the admiration which the impressionists assert should be felt before such inferior work as this.

Other artists better deserve encouragement in spite of their faults. We will mention M. Michelena, whose large "Combat of Amazons," does not lack for movement, but is lighted by an effect of the rising or setting sun, which casts disagreeable tones over the canvas.

Among the larger compositions must also be mentioned the "Death of Sardanapalus," by M. Chalon. Everybody knows that Sardanapalus did not want to fall alive into the hands of his enemies, and so made for himself a huge funeral pile upon which he heaped up all his wealth, including his wives and bodyguards. It is only a pretext which M. Chalon has adopted, in order to paint sumptuous costumes and hangings, and precious objects of gold and diamonds, and naked women, maddened at the sight of the flames which begin to reach them. The painting is brilliant, but rather confused, yet it contains some good bits.

M. Rouffet also has desired to do a big thing. He has taken from the "*Waterloo*" of Victor Hugo a subject which he styles "La Fin de l'Épopée." Here are gigantic men on colossal horses. The gaping ravine is there, and men and horses push one another over in a terrifying melée. The ravine is filled with corpses. Whose is that head? Whose that leg and that arm? One cannot tell. Everything is pell-mell: much movement, but movement which does not succeed in creating a dramatic impression. It is this feeling which we find in almost all these great compositions, except that of M. Rochegrosse; and it is only before paintings of more modest dimensions that we find emotion and sentiment better expressed. So we regret the more to find many easel subjects losing their legitimate interest by being treated at too great a scale. But the first necessity is to attract the eye of the public, which pushes its way towards these great sheets, and too often neglects the work of real but modest talent. Art perhaps suffers by it, but one secures attention, and that, after all, is the only aim of many artists.

In a general article like this, where one only endeavors to indicate the physiognomy of the general appearance of the *Salon*, it is difficult to mention all of the works which deserve attention. A certain number of them must be neglected, and a halt can only be made before those of indisputable merit. So, we can only name among the *genre* painters MM. Geoffrey, Heyermans, Jameson, who have good pictures, but have chosen subjects that are lugubrious and painful. One point must be noted, that the painters present us a majority of paintings which are more than merely severe. Are artists as a rule not gay? In any case, the idealistic school is not very numerous, and the most ordinary episodes of life exhibit themselves on the walls of the *Salon*. These are charming enough, when the artist works with conviction, and knows how to add that little note of poetry which art generally succeeds in finding almost everywhere in nature. Sisters of Charity in their white caps teaching young peasants to sing in a bare hall is a simple and commonplace subject enough, yet this is the subject of Mr. Walter Gay's painting — one of your compatriots, born at Boston; but this artist has enshrouded his scene with air and light. One can almost hear the fresh voices of the young girls, and in the whole work there is a good deal of the sentiment of melancholy.

We will say the same of M. Emile Adan, although his methods are somewhat artificial, and his landscapes extremely proper and precise; and we will make the same comment even more pointedly in the matter of M. Knigt, whose "Les Amies du Berger" recalls a little too strongly the varnished peasant women of M. Bouguereau.

M. Lobrichon is far from melancholy in his work, and his picture is very amusing. A crowd of little pauper children are ranged in file, one behind the other, with bibs about their necks, waiting the signal to take their places at the table and eat their soup. All these little faces, smiling, serious or scowling, are very amusing.

A pretty little picture by M. Victor Gilbert shows us the Rue du Temple at supper time. The workmen and their wives fill the streets, and the handcart of the pedler of cherries is attacked by a cloud of young and joyous epicures. It is luminous and lively.

I need not speak of M. Henner. It is almost enough to mention his name, for he is always the same — flesh of greenish ivory hue. I prefer to stop before the two canvases of M. Munkacsy. One, the less good of the pair in my opinion, represents a gypsy scene: musicians playing his favorite melody before their chief. It is a little black in general tone, but the artist, leaning on his elbow and listening, is extremely well studied, and his expression has a great deal of artistic expression. M. Munkacsy also exhibits a fine portrait of a woman, one of the best in the *Salon*, which possesses the same qualities as that which he sent last year. Moreover, the arrangement is almost the same. The model, in a light toilet, is sitting gracefully and simply, surrounded by accessories which interest without drawing attention from her. The general effect is perfectly harmonious. How much more agreeable is a portrait of this kind than one which stands out coldly upon a vague and uniform background.

The portrait of a woman which M. Bonnat exhibits is of this latter kind. It is a magnificent work, and recalls the "Madame Pasca," by the same artist. M. Bonnat put a curb on the vigor of his pallet in modelling the flesh tones, which are quite soft, although at the same time strong. The white satin dress is handled with great ability, but the subject rests upon nothing, and stands out against the plain background, which gives it a brutal air, and causes it to lose life and charm.

Before mentioning the authors of many of the fine portraits, we will first finish the too brief list of the *genre* painters and the painters of decorative subjects. One of the prettiest paintings of the latter kind is signed by M. Gervais, and represents the "Three Holy Marys," who, adrift, almost naked, in a disabled boat, miraculously float ashore midst the marshes of Provence. It is altogether charming. The blue water, cut here and there with yellow reeds, stretches out to the horizon, while the figures of the saints, calm and serene, are extremely graceful, and the general tone of the painting is tender and agreeable.

Among the artists to be remarked, I will mention M. Haquette, whose "First Embarkation" is a pretty scene of fisher's life; M. Chigot, with his large marine view; M. Brouillet, whose "Ambulance of the Comédie Francaise during the war," is well painted; M. Bougereau, who always handles the same subjects in the same manner; M. Weiss, who exhibits some pretty subjects in the Louis XV style; M. Vibert, who always paints very red and very gay cardinals — those of this year are at the end of their jovial banquet, have summoned the cook and drink a toast to him. It is quite amusing and witty. A pretty little Oriental scene, the court of a khan on a market-day filled with life and sunshine, is signed "Pasini." M.

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Bourgain exhibits an amusing group of sailors, and M. Georges Cain sends a very graceful picture, which represents the presentation of Lord Byron to the Countess Guiccioli. We find another painting by M. Bonnat, an academic subject "The Youth of Samson," which is not pleasing. In M. Bonnat's method there is an employment of stippling and hatching, which injures the effect.

After M. Munkacsy, we must speak of M. Benjamin Constant. His portrait of his wife is magnificent and grandly attractive. The superb head is framed in white hair, and the gleaming bosom under the black velvet of a low-cut dress is most admirably rendered. The adorable little portraits of M. Chartran must also be mentioned. One of them is Mlle. Brandès of the Académie Francaise, which recalls Bastian-Lepage, in its handling.

Next, we must examine the not less interesting exhibits of the landscapists, who are always making progress. In the first rank we must place him who is considered their dean, M. Francais, who, in spite of his great age, is this year represented by a very beautiful landscape, in which can be found the idyllic feeling of the antique landscapes but instinct with real naturalness: a nude figure is seated on a rock on the shady lake shore, while a gleam of the setting sun is mirrored in the water. The picture is full of freshness and charm. The paintings of M. Gagliardini have quite another air. His "High Noon in Auvergne," is a burst of sunshine. With the exception of M. Montenant no one knows as well as he how to render such effects of excessive light. One feels warm merely in looking at it. The method of M. Gagliardini is also very interesting to study. He works largely with the palette knife, which in no way prevents his obtaining transparent effects of great delicacy, as he proves in a little sunny marine view of great merit. M. Guillemet is, as always, an able landscapist. This year, in a canvas which somewhat recalls the one at the Luxembourg, he shows us the "Quai de Bercy at Charenton," during a storm; a black cloud hovers over the horizon, while a burst of sunshine striking upon the wet ground presages a return of fair weather. M. Harpignies also is a veteran of great talent, but I cannot avoid finding his landscapes always cold and dull. As to M. Jan-Mouchablon, he makes a specialty of landscapes carried to the farthest limit, and elaborate with the utmost detail: nevertheless, they have much truthfulness and give an exact impression of great stretches and distant horizons in spite of their small size. M. Loir Luigi also produces this impression of exactitude, but uses a broader and more vigorous brush. He exhibits a view of Paris at dusk, when the street lamps are lighted, and the fair booths illumine the surrounding obscurity with rays of light. M. Bompard brings us a bit of Oriental sunshine. His two canvases are very good and luminous, and he should be mentioned in the first flight, as well as M. Charnay, who is for a landscapist what M. Chartran is as a portraitist. He exhibits two little gems full of delicacy and distinction. I have forgotten a great canvas by M. Renouf, which represents Brooklyn Bridge in rather a panoramic manner, but interesting nevertheless. The bridge, in perspective, detaches itself in dark color against the ruddy sunset sky, which is reflected in the water, leaving the distance blotted out in gray tones. There is in this painting a great deal of atmosphere, and the subject is ably treated, and draws attention by reason of its great size.

We come at length to the architectural exhibition which consists of 210 numbers, instead of 149 as last year. In this figure are included many water-colors; but we do not complain of that, for it is the most charming and the most practical method of presenting architectural subjects to public attention. Among the prettiest we must first mention those of M. Ghesquier, who exhibits a series of Flemish towers and belfries, as well as public monuments and buildings of Lille, which are charmingly done. MM. Camut, Guillaume, Henry, Libaudière, Martin, Picot, Ridel, Umbdenstock and Warren must also be enumerated among the more skilful; likewise M. Daumet, with some interesting views of the interior of the Church of St. Stephen at Vienna, whose organs are so curious.

But what a number of old and forgotten competition drawings! How many School *projets* spreading themselves on huge *chassis* in a manner startling to behold. They are not at all interesting, and the "*envois de Rome*" and all the academic restorations of monuments partly destroyed are hardly more so. In the first place it is nearly always the same thing, the same fragment restored with the use of india ink — capitals, friezes and entablatures rendered with a greater or less degree of perfection. They are always works of considerable magnitude, but I would like to understand what is their real usefulness. Nevertheless, let us pay our respect to the talent expended in this way by MM. André ["Theatre and Forum at Ostia"], Defrasse, Chedanne ["Theatre of Marcellus," which we have seen often enough before], and Charles Normand, with less commonplace restorations of the ruins of Metapontum in Greece according to the latest excavations, a work which has its interest from an archæological standpoint. M. Paulin has given a more interesting character to his studies of this kind. His "Piscina of the Baths of Diocletian" is filled with a crowd of persons and accessories, and is full of movement. It is the very life and manner of those times restored at the same time with the architecture, and thus interest is made more complete.

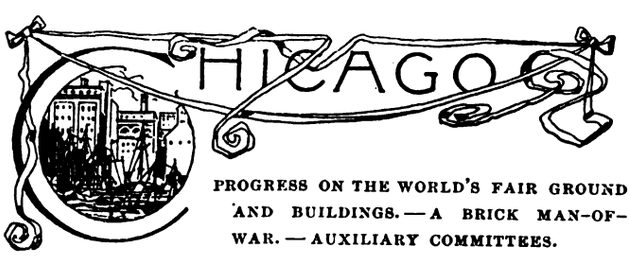
M. Benouville exhibits a very conscientious drawing of the Château de Vizille (Isère). This château, begun in the twelfth century, became the royal palace at the time of the union between Dauphiny and France. Under Henry IV it had passed to François de Bonne, Duke of Lesdiguières, 1593, and was finished between 1611 and 1620. It is considered the work of J. Richier, the author of the statue of Lesdiguières, which ornaments the main doorway. It belonged once to Créquy, then to Villeroy, and in 1775 it was sold to Claude Pérter, who there established a dye-works, and the château still belongs to this family. It is an interesting structure, of fine character, all of stone, and M. Benouville has represented it in a very charming manner.

M. Courtois-Suffit has in his study for a ball-room for the City of Béthune, a competition drawing, gathered together all his remembrances of the Universal Exposition. Iron and ceramic work play a leading rôle in this curious construction. It is a little too vivacious and overloaded with decoration. The abattoirs of Havre, by M. David, which are very well studied, bring us to an order of architecture of quite a different time, but which merits praise; and MM. Delaporte and Deverin have given themselves much trouble in restoring, after the drawings of M. Delaporte, a naval lieutenant, the Temple of Baion at Angkor. This Indian architecture, sculptured in enormous blocks, is certainly curious, but on the *chassis* it becomes dry and cold. In this case, again, we must do homage to talent and labor. Near by, the little compositions of M. Robert de Massy are very interesting: these charming little Moorish fountains are the recreations of a real artist. M. Dutocq has undertaken to draw and restore the château at Ecouen (Seine-et-Oise). This château, built by Jean Bullant for the constable Anne de Montmorency, to-day is used as the branch establishment of the Legion of Honor for young girls at St. Denis. M. Dutocq has made a very conscientious study; the restoration of the chapel and the *salon d'honneur*, with its fine fireplace, has given occasion for very harmonious studies in decoration.

The rampart of Aigues-Mortes, built by Philip the Bold, is shown in its present condition by M. Louzier, who has made rather a dry bit of work of it, for the archives of the Commission of Historical Monuments.

Now let us look at the ruins of the old St. Vincent de Mâcon, drawn in ink in a charming manner by M. Malo; at some pretty sketches of Breton architecture, by M. Mayeux, and the north transept door of the Church of Maclou at Rouen, carefully drawn but rendered in a chilly manner by M. Paulme. Then let us stop a little longer before the restoration of the Château de Bressuire, by M. Barbaud. It is an interesting and complete study of a fortress, dating between the eleventh and sixteenth centuries, whose ruins still form one of the most curious and important groups which the Middle Ages have bequeathed to us. M. Raymond Barbaud, in the course of his excavations, found very interesting traces of the early structure, amongst others those of a chapel dating to the time of the Romans. Let us also mention M. Rouillard's extremely curious drawings of the paintings in the church at Pontigne (Maine-et-Loire), and the ancient convent of the Jacobins, now a *petit-lycée* at Toulouse, sixteenth century. These frescos are rendered in water-color with a really marvellous skill and commendable exactitude. These are good documents for the archives of historical monuments.

There are many other interesting things, but we have sought to give an idea only of the most interesting works of this *Salon*.



PROGRESS ON THE WORLD'S FAIR GROUND AND BUILDINGS. — A BRICK MAN-OF-WAR. — AUXILIARY COMMITTEES.

AT present the greatest architectural interest seems to centre around the World's Fair matters. Work at Jackson Park is being pushed with great activity and a good beginning is being made on the colossal task of perfecting the plans and preparations for the buildings.

With the exception of the loop for the railroad which may be changed, the apportioning of the land and the grouping of the buildings, is entirely settled, and as will be seen the general lay-out is practically the same as that indicated on the small plan published in these letters some months ago. At the most northern limit of the Park is the reservation for the State buildings and buildings of foreign nations. South of this and to the east is to be the fishery exhibit, situated on an island, while to the south and west of the State exhibits is the women's department. Between the fishery and women's exhibits, lies the northern end of the lagoon, which extends southward from this point, and around which all the principal buildings will cluster, the Government and Manufactures and Liberal Arts on the east, the Electrical and Mines-and-Mining on the south, and the Transportation and Administration Building on the west. As already stated in a previous letter the centre lagoon is to be occupied by a wooded island, and if one can judge from the newspaper cuts the general arrangement and grouping of the buildings, with the accompanying setting of land and water will be

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very satisfactory. South of the building for Manufactures and Liberal Arts, stretches a basin which separates this allotment of land from that designed for the Agricultural Building. West of this structure and divided from it by a stretch of water is Machinery Hall, while still farther south, below these latter buildings, are the sixty-three acres set apart for the live-stock exhibit with its pavilion. Space in these sixty-three acres will also be assigned for the building for the forestry products and one for dairy interests.

The eleven-hundred-feet-high Columbian Tower if built at all, which now appears improbable, will be situated in the Mid-way Plaisance between the Illinois Central tracks and Stoney Island Avenue, while west of the tracks and covering about nine acres, will be the Bazaar of all Nations.

The naval exhibit will, of course, be on the shore of Lake Michigan. One interesting feature of this exhibit will be a fac-simile of the caravel in which Columbus sailed from Palos four hundred years ago on his memorable voyage. It will be equipped exactly as was the orginal Pinta or Nina, and will be manned by sailors in the costumes of those times. It will be completed in time for the grand naval reviews in New York and Norfolk in 1892, and will then be towed through the St. Lawrence and Welland Canal for the opening of the exhibition in Chicago. It is to be hoped the great lakes will deal gently with the caravel, for after the frail original had crossed the stormy Atlantic it would be a sad case of degeneracy to have its fac-simile wrecked on an inland lake no matter how large and stormy that lake might be.

By the time of the publication of this letter, the contracts for the battle-ship will be let and work on that commenced. The naval architect who has charge of the matter has been on here giving all necessary information to builders. The contract calls for separate work on the piling and super-structure and two forms of bids will therefore be forthcoming. The idea of the battle-ship is to build an immense structure similar on the exterior to our new war vessels, and which while it gives an exact idea of their external appearance, will afford space in the interior for a naval exhibit and also offer an illustration of the mode of life in the navy. The structure will have all the fittings of a ship such as guns, turrets, torpedo-tubes, torpedo-nets, etc., though neither spars nor sails. The structure will be of brick covered with concrete and will be over three hundred feet long. The entrance to the vessel will be from the pier at the foot of Fifty-ninth Street. The entrance will be on the main-deck, down companion or hatchway to the berth-deck, where a spacious room the whole length and width of the structure is to be reserved for the naval exhibit. Beneath the deck and directly below the turrets of the thirteen-inch guns are to be the magazines, showing the storage, lighting and flooding, according to navy regulations. On the berth-deck will be shown the various fittings pertaining to the hull, machinery and ordnance. Portraits of all the men famous in the annals of the navy from Paul Jones down to Farragut, Porter and Cushing, will be hung in the various apartments.

The work of dredging is being pushed with all speed, so it is to be hoped the lagoon will be completed by the end of this month and the grading completed which makes the sites ready for the foundations of all the buildings. Over nine hundred men have been at work in this especial department and three large steam dredges have been constantly at work.

Over one hundred thousand plants have been shipped to the place and are being cared for by a large force of gardeners. The proposed wooded island is already converted into a nursery, while on one part of the island it is proposed to lay out a primeval swamp, such as formally occupied the site of Chicago, the plants for the purpose being already on the grounds. Three greenhouses have already been built and a storehouse for palms, and preparations are being made to receive wild herbaceous and aquatic plants from all parts of the country. Sixty thousand willow cuttings are already in the ground, ten thousand of them being sent as a gift by the Park Commissioners of Buffalo, N. Y. Mr. Olmstead has presented the Exposition with bamboos from Asheville, N. C., near to the park he is there laying out for one of the Vanderbilts.

The construction of the railroads is being pushed forward with all speed, and the road-bed for the spur that is to run to the Mines-and-Mining Building will be finished by the time this letter is published. Fifteen miles of track have already been laid.

The working-plans for many of the buildings are completed and approved. The Electrical, the Agricultural, the Transportation and United States Government Buildings have all the plans completed. To this list may be added the building for the fishing exhibit and Machinery Hall.

The contracts for three of these buildings have already been let, and it is a noticeable fact that the contractors have been largely parties from other cities. The Women's Building, the Manufactures-and-Liberal Arts and the Mine-and-Mining Buildings are the structures which have so far progressed. For all of this work firms from Minneapolis, Cleveland and Omaha have taken large contracts. Much dissatisfaction is felt on this account among the Union men here, as they say that the outside bids being so much lower than the Chicago ones, of course the contractors made their figures on the rate of wages paid in their own towns, which is much lower than the regular schedule wages of this city. A Minneapolis firm who has the largest contract in the Mines-and-Mining Building, is in the habit of paying twenty-five cents an hour or two dollars and fifty cents for a ten-hour day, while the Union-rate of wages here for a day of similar length, as containing over-time, would be three dollars and eighty-five cents.

The Directory, having once again, and this time finally, refused to incorporate into the contract the minimum rate of wages or the employment exclusively of Union men, the contractors are free to hire men where it best suits them so to do, and to pay them whatever wages they please. The labor leaders claim they will antagonize the Fair in all labor organizations both in this country and in Europe. This, however, looks like an empty boast made in an endeavor to "keep a stiff upper lip."

While on the subject of labor it is interesting to note that the question concerning the alien-labor law has been recently addressed to the State Department by the various governments, as to whether under said law skilled workman would be debarred from coming to this country with exhibits for the World's Fair, and setting up and operating the necessary machinery. Attorney-General Miller in reply to this question submitted to him is of the opinion that there is nothing in the statutes of the United States which will prevent exhibitors using their own discretion as to the placing of their exhibits in the hands of their own skilled workmen. To prevent such proceeding was not the intention of the contract-labor law, but only to protect citizens of the United States from the encroachment of laborers on their rights. Sending over men skilled in the use of operating ponderous and complicated machines, could never be construed as a violation of the contract-labor law, and hence there can be no objection to this course of action.

Among the foreign exhibits that has taken definite shape and bids fair to be an extremely interesting one from an architectural point of view, is the exhibition from Honduras. Plans have been forwarded to the Latin-American department at Washington, which show that the exhibit will be in the form of a square, one side representing ancient Spanish-American architecture; another, a mountain range; a third, agriculture in the form of a native ranch, and the fourth, the antiquities of the country. To this latter department one enters through portals made of casts from the two great carved stones of Copan. Inside the square the space is divided into eight divisions for the exhibition of timber, agriculture, mines, etc.

The laws governing the buildings for the State Exhibits have been adopted by the Committee of the Directory and Board of Control. They are as follows:

"2. Each of the States of the Union, the Territories and the District of Columbia, shall be entitled to erect and maintain on the Exposition grounds, a building for the use of such State, Territory, or District of Columbia (or two or more States or Territories, if so desired, may erect and maintain a building in common) and each State or Territory desiring to erect such a building (or two or more proposing to erect a building to be used in common) shall, through their official representative, or the State World's Fair Boards, file with the Director-General, an application in writing for ground space for such building, and as soon as possible, in writing give a general description of the character and style of the building proposed to be erected, and the sum of money appropriated for the construction thereof; and after the ground space shall have been allotted, and before any occupation thereof, there shall be filed with the Chief of the Bureau of Construction, detailed plans and specifications for each of such proposed buildings and when such plans and specifications shall have been approved by the Chief of the Bureau of Construction and by the Director-General, a permit to erect a building shall be issued by the last-named officer.

"3. Preparatory to the assignment of ground-space for State buildings, the Director-General, after conference with the Grounds-and-Building Committee of the Exposition, shall cause the States and Territories of the Union to be grouped in such manner as shall appear most likely to produce the best results to the Exposition as a whole, and shall allot suitable ground-space to each of such groups; and after such allotment shall be made, the space in each allotment shall be again properly subdivided so as to provide suitable independent location for each State or Territory, and the location of each individual State or Territory within the territorial space assigned to that group wherein they are included shall be determined in the order of their application; subject, however, to harmony of grouping of buildings, which shall be determined by the Supervising Architect and Landscape Engineer and Director-General.

"4. Either duplicates or originals of the plans and specifications for every State building as approved by the Chief of the Bureau of Construction and the Director-General, shall, before the issuance of the permit, be filed in the office of the Director-General and be preserved as a record of the Exposition.

"5. In the construction of such State buildings each State or Territory may use such material or materials produced in such State or Territory as the State Board shall determine, with a view of promoting a full exhibition of the structural materials produced in such State or Territory."

For some months past has been organized by the officers of the Fair under the title of the World's Congress Auxiliary, a series of committees to promote gatherings of celebrated persons of all professions, here in Chicago, in 1893. A glance at some of the committees will indicate the extent of the undertaking and the variety of interests it is hoped to have represented here in that much-to-be-crowded summer.

Committee on Educational Congress including Common School, Kindergartens, etc.

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On Scientific and Philosophical Congresses.
On Mural and Social Congresses.
On Labor Congresses.
On Literary Congresses (including languages and libraries).
On Law Reform Congresses.
On Agricultural Congresses.
On Musical Congresses.

The above-mentioned congresses are only a few for which committees have been appointed from men prominent in their special professions. The one that most interests us is the committee on "Artists' Congress, including Architects, Painters, Sculptors, Decorative Designers, Photographers, etc." This committee is composed of J. W. Ellsworth, N. H. Carpenter, Walter C. Larned, S. S. Beman and Lorado Taft, the secretary.

To this scheme of the World's Congress another department has been added, that of Engineering. Representatives of the principal engineering societies of the country have been in the city attending a convention for the purpose of planning for the establishment of this congress.

It is intended to make the headquarters a bureau of technological information of all kinds, for the convenience of engineers from all parts of the world, having in connection with it a publishing establishment for preserving all literature on engineering subjects that may be presented. The congress will continue in session a week. It is hoped the Directors will provide suitable quarters for the Bureau. About ten thousand dollars would be required for the expenses of the congress, and various schemes for raising the amount have been suggested. One is that a one-dollar assessment upon the members of the engineering societies be made, and a two-dollar fee be paid by members of the congress.

At the convention the Committee on Organization made the following report which was finally adopted.

"This body shall be called the 'General Committee of Engineering Societies, Columbian Exposition.' The objects of the committee are:

"1. To provide on behalf of the engineering societies represented on this committee, an engineering headquarters for members of all engineering societies of the world who may visit Chicago during the World's Columbian Exposition.

"2. To promote an international engineering congress to be held at the World's Exposition in 1893, under the auspices of the World's Congress Auxiliary of the World's Columbian Exposition. This committee shall be composed of one member from each society of the United States and Canada, which has or may join in the plan, except the American Society of Civil Engineers, the American Society of Mechanical Engineers, the American Institute of Mining Engineers and the American Society of Electrical Engineers may each appoint two members, and the Western Society of Engineers three members. The officers of the general committee shall be a chairman, secretary, treasurer, and an executive committee of seven, the chairman of the general committee to be *ex-officio* of the executive committee." After the adoption of the report a resolution was offered and accepted to the effect that it was the feeling of the meeting that the importance of engineering should entitle it to a place among the congresses to be held in 1893 in the city of Chicago.

A movement has been started to forward an architectural display at the Fair. A committee consisting of several leading architects and the former promoter of the Institute of Building Arts conferred with Director-General Davis concerning the possibility of obtaining space for an exhibit. It was decided quarters could be given them in the Manufactures Building, and that if a suitable man could be suggested by the architects he could be appointed Chief of the Architectural Bureau. The idea would be to obtain from various societies in different parts of the world models, drawings, building materials, models of buildings, etc. The object would be to arrange in a conveniently small space all materials and inventions interesting to architects and others interested in building. In this way the difficulty experienced at Paris during the last Exposition will be obviated and those interested in architectural matters will be able to study points of interest and compare different processes and materials without the necessity of visiting numerous buildings, walking over a large extent of country and often missing many of the objects of their search in the general mass of exhibits. As soon as this Bureau is in working order there will probably be issued circulars from the Chief of the Bureau, stating the object and asking for co-operation by all persons interested in the success of the enterprise. Certainly, as the architects themselves cannot but be greatly benefited by an exhibition of this character, it is to be earnestly hoped that they will generously respond to such an appeal.

WHO IS REMBRANDT? — Great excitement has been caused in the artistic world of Germany by a book entitled "*Who is Rembrandt?*" by Max Lautner, who contends that a great part of the paintings attributed to Rembrandt are the work of one of his scholars, Ferdinand Bol. With a new photographic magnifying process, invented by himself, he discovered, he says, on a great number of works bearing the name of Rembrandt, the clear traces of the name of Ferdinand Bol, scratched in the original fresh paint, and under the varnish. Thus, in the case of the celebrated picture "Joseph and Potiphar's Wife," purchased at a high price by the Berlin Museum, the photographic apparatus has discovered a very clear impression of Bol's name to the left of the raised foot of Potiphar's wife, on the pedestal of the seat on which she reposes. — *Galignani Messenger.*

REFRIGERATORS IN NEW ZEALAND.

THE subject of refrigerating machines is one of considerable magnitude in New Zealand, embracing, as it does, one of the most important industries of the colony.

All the refrigerating machinery used in New Zealand is manufactured in England, and is known as the "Haslam dry-air refrigerator," and is used exclusively for freezing beef and mutton for export to the London market.

. . . . . .

The manufacture and sale of ice in this colony is very limited indeed. Machinery intended for the manufacture of ice alone would not, in my opinion, pay here. Ice is not used in any considerable quantities, as the climate in most parts of New Zealand is mild and equable, and, in consequence of this, the necessity for ice is correspondingly reduced. Whatever ice is required is procurable from any of the "freezing-works" throughout the colony, and at very reasonable rates, considering that none are manufacturing it specially for sale. Ice is obtainable at the rate of one cent per pound.

The following will afford some idea of the size, cost and capacity of a few of the refrigerators in use in this consular district:

In the Christ Church district there are two meat-freezing establishments, both of which machines are manufactured by Haslam & Co., Derby, England, as, indeed, are all the machines used for freezing purposes in the colony. I will give the size and power of one of those in use in Christ Church, which will suffice for both. One of these machines is capable of delivering 110,000 cubic feet of cold air per hour. The cost of this machine in England was $18.248.87.

There are also two freezing-works in the Wellington district. The Gear Meat Preserving and Freezing Company of Wellington have two machines, each capable of discharging 45,000 cubic feet of cold air per hour. The cost free on board in London was $13,139.55. This company will have an additional machine in about two months hence, with a capacity equal to 150,000 cubic feet of air per hour, which will cost, including condensers, free on board, London, $21,899.

The Wellington Meat Export Company have three refrigerating machines in constant use. Two of these machines deliver 120,000 cubic feet of cold air per hour, at a temperature of about 70 degrees below zero at the point of discharge. The third delivers about 50,000 feet of air at about the same temperature. The two larger machines will freeze 500 sheep per diem, while the smaller one will only freeze about half the above number. They are all air-compressing machines. The larger ones cost, in London, $17,032, while the smaller one would be supplied now for about $10,949.32.

This company has been sending away for the last six months an average of 1,100 cattle and 17,000 sheep per calendar month.

It may be said of all the machines used in this colony for meat-freezing purposes that no special or peculiar features are required, except that they have to be adapted to freezing large quantities of meat in a short time. None of these machines are used for chilling or storing meat for local consumption.

It may be somewhat interesting to many to get a pen-picture of one of these great meat-freezing works and the *modus operandi* of meat-preserving, and the disposition made of a sheep from the time it enters the slaughter-house until the final process is gone through with. For this purpose, I will select the freezing-works of Nelson Brothers, at Tomvana, near Napier, N. Z., commencing with the slaughter-house, which is a long shed where the sheep have arrived at the "sticking-point," and come under the hands of twenty butchers, who are busily engaged killing, skinning and dressing them. Through this shed runs a miniature railway, which takes away the fat to the boiling-down house, the skins to the fell-mongery, the intestines in due time becoming fiddle-strings to charm or torture, as the fates decree. Overhead are a number of rails, on which run friction-rollers, to which the carcasses are hooked, and here they begin the long journey which is to end in London. Along these rails they are rolled into the cooling-room, in which they remain till all their animal heat has been expelled, when they are passed into the refrigerating chambers, where they are frozen for thirty-six hours, by the end of which time they give out a bell-like sound when struck. From these chambers (which hold from 200 to 600 carcasses) they are removed to storing-rooms, and in due course are taken away to

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the port of shipment in specially-constructed railroad cars; 1,400 sheep can be prepared per day, and there is a storage for 40,000 carcasses.

From the slaughter-house we pass to the boiler-house, in which we find, in addition to four 20-horse-power boilers, a striking novelty in the shape of a 60-horse-power Babcock & Wilcox boiler, in which the steam is generated in groups of tubes, between which the heat from the furnace circulates, which tubes depend from a horizontal steam-drum mounted on trunions at its ends, which arrangement allows for an unequal expansion of the parts, the drum being luted to the brick-setting inclosing the tubes. The flues of all the boilers lead into one of "Green's Economizers," containing 168 tubes 12 feet long and 4 inches in diameter, for heating the feed-water which is passed through them on its way from the condensers to the boilers, and is thus heated by the waste-heat circulating between the tubes.

Adjoining the boiler-house is the refrigerating machine. Here are four Haslam dry-air refrigerators busy at work, in which the air, on its way to the freezing chambers, is first heated by compression, then cooled by passing through pipes surrounded by cold water, and then passed into a chamber containing dry-air pipes. After passing through these pipes the air is expanded, by which means its temperature is reduced to 80 degrees below zero. It then passes through air-trunks into the freezing-chambers, and, after doing its duty, passes back through exhaust-trunks to the compressors. In the freezing-chamber the cold is, indeed, most intense — frost on the roof, on the walls, on the floor, and here and there a little snow. In this chamber are countless carcasses undergoing the freezing process.

The engine-room and freezing-chambers are lighted at night by a Siemens electric-light, the dynamo for which is driven by a three-horse-power engine.

Leaving the engine-house, we pass two large reservoirs, from which 700,000 gallons of water are daily passed through the machines.

Entering the wool-shed, here is an invention which will probably revolutionize all those processes in which wool requires to be dried after being washed, dyed, etc. Sheep-raisers, fellmongers, wool scourers and dyers have long sighed for some inexpensive and efficient apparatus which should render them independent of the weather, and enable them to do their work with satisfaction, precision and absolute certainty. This desideratum is at last supplied in these patent wool-drying machines, two of which are here at work, and by which the wool to be dried is exposed to a blast of warm air, so that its fibres may be repeatedly acted upon thereby, and thus be regularly and rapidly dried, the dried wool being expelled from the machine by means of the blast. Each machine consists of a sparred drum, open at both ends and revolving on friction-rollers in a casing, between the bars of which (drum) air is forced from a longitudinal air-trunk. The interior of the drum is furnished with sparred shelves, which, as the drum revolves, successively take up portions of the wool and allow them to fall, and thus expose them fully to the current of air, and also shake out any dust or other foreign substance, which in itself is a great advantage. Both drums are 8 feet in diameter, one being 14 feet long and the other 30 feet. The shorter drum is worked intermittently; that is, a charge of wool is thrown in at one end, and, when dried, is blown out at the other by turning on a blast. In the longer drum, the feeding and discharge of the wool are carried on continuously, the wool fed in handfuls through a hopper at one end, and the blast from the air-trunk being directed by means of adjustable "feathers" onto the wool in an oblique direction, so that the blast both dries and propels the wool through the drum. The apparatus, which is exceedingly simple in construction, can in two hours be taken to pieces for transmission, and as readily set up on its arrival at its destination. Upon examination, the dried wool is found to be of an extremely silky lustre. I have devoted considerable space to this "wool-drying" apparatus, in the hope that it may be of interest to the wool-growers and others interested in the wool industry in the United States.

One noticeable feature around these great meat-preserving establishments is that there is positively no waste. Everything fit for human consumption is utilized and prepared in the most careful and painstaking manner. Thus the skins of the refrigerated sheep are cured for subsequent manufacture into parchment, "morocco" and "roans"; the clippings from the pelts are washed and dried by patent machines already referred to, and turned out as short wool; the kidneys, tongues, etc., are tinned, and even the horns and bones of the bullocks are sent to the bone-dust factory to be ground, and thus again assist in the production of additional comforts for mankind. In my description of the cooling-chamber, I find I have omitted some important details. The cooling-room is constructed with a double ceiling, through which a current of air is drawn by a fan driven by a donkey-engine. In this cooling-room the carcasses are permitted to remain for ten hours, when all the animal heat has been expelled. The carcasses are then placed in the refrigerating chamber, the walls, floors and ceilings of which are insulated with a charcoal lining, and the cold air is supplied through an inlet air-trunk direct from the engine, and afterwards passes back to be cooled down and used over again. By this means there is a constant circulation of cold air throughout the freezing-chamber.

All the steamers and sailing-vessels plying between England and New Zealand, and engaged in the frozen-meat carrying trade, are supplied with Haslam refrigerators. It is asserted that 95 per cent of all the frozen meat placed upon the London market is treated by the Haslam process.

There are seven refrigerating machines in the Auckland district, with a capacity ranging from 2,000 to 120,000 cubic feet of cold air per hour.

The cost of the smaller machines is about $3,400 each, while the cost of the larger machines, those capable of discharging 120,000 cubic feet of air per hour, is $17,032 in England.

There are ten large meat-freezing establishments in the colony, and about five smaller ones, as near as can be ascertained. The total number of Haslam refrigerating machines in use in New Zealand for meat-freezing purposes is twenty-six. It is asserted by all who are interested in the meat-freezing industry that the "American ammonia-machines" are useless for meat-freezing; consequently, could not be sold here at any price for meat-freezing purposes.

Jno. D. Connolly,
U. S. Consul.

THE FOUNDLING ASYLUM AT BORDEAUX, FRANCE.

Facing the busy quay that traverses the western portion of the city of Bordeaux, and overlooking the fertile banks of the Garonne River on the opposite side, is a low, sombre, three-storied building of Munich gray granite. The structure possesses neither magnificence nor attraction, and a few tall poplar trees throwing their shadows across the portico scarcely lend charm to the picture. There is nothing particularly noticeable to the passer-by in this conventional pile of stone and mortar, with the exception, perhaps, of a curious-looking, double, reversible armchair, fixed into the wall at the right of the entrance about four feet above the ground and turning on a pivot, so that, if one side be directed toward the exterior of the building and facing the observer, the other must necessarily be directed inward.

The building is the foundling asylum of Bordeaux (L'Hospice des Enfants Assistés). The chair is the well-known "*tour*," or wheel, intended for the reception of abandoned infants and now, of necessity, fallen into disuse.

The asylum was founded in the year 1619 by a benevolent maiden lady named Tanzia. Over the door is inscribed the following words: "*Mon père et ma mère m'ont abandonnés, mais le Seigneur a pris soin de moi*" ("my father and mother have abandoned me, but the Saviour has taken me into his care").

Within, the stillness is almost audible. The sound of one's footsteps echo and reëcho along the vacant halls and dormitories, until, seeking out quiet nooks in the dark distance, they lie down to repose and whisper "silence." The asylum has two hundred and fifty beds, or cribs, each as neat and as clean as the active, white-capped Sisters of Charity who move noiselessly among them.

The wheel, or chair, just described is a well-known institution in France, serving, until a comparatively few years ago, as a general receptacle for outcast children. An infant had but to be placed by any one wishing to rid herself of the little creature upon the chair, a turn given to the same, and immediately, as if by magic, the embarrassing object has disappeared within and another chair awaits the new comer.

It is rare that so apparently insignificant an object has given rise to such violent discussion as has this chair, or "*tour*," in France. By some its existence is held as a never-failing incentive to illicit love; by others it is held that its abolishment would promote infanticide. . . .

By the decree of January 19, 1811, two hundred and thirty-five "wheels" were established throughout France. On November 1, 1837, the same were by law partially suppressed. In the year 1860, twenty-five remained; in 1870 but four were in existence — one in Paris, the three others in Marseilles, Rouen, and Evereux.

When the "wheel" at the asylum of Draguignan was suppressed in 1859, the number of foundlings sank from 103 to 14. When, a year later, the "*tour*" was suppressed in Antwerp, the number of infants left surreptitiously at the asylum fell off 25 per cent.

Let us now, by way of parenthesis, compare the foregoing figures and some of the rather limited statistics furnished us by the metropolis of the New World. When, in 1869, the Sisters of Charity established a foundling asylum in New York City, they received the first year almost a thousand infants under three weeks old. A crib was

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placed in the vestibule at night, and dishonored mothers found the plan a very convenient one. . . .

Soon the gloomy old asylum on the Quai de Palandate at Bordeaux will be no more. A score of laborers will be at work at its demolition making way for a more necessary adjunct to liberal education, social economy, and scientific advancement — a railway station. Where once the wailing cries of many a little waif waked the slumber of the silent night; where once a long-drawn respiration, a gasp, and the absence of a mother's care ended a life just begun, the piercing shrieks and groans of steam whistles, the mournful and incessant rolling of iron wheels, the dismal clanking of brakes and couplings will leave but a memory of what has gone before.

But what a memory! If all that imagination has pictured, all that fancy has created, all that delirium has raved or nightmare painted in the brain of man; if all that romance has conceived, visions conjured, or reveries awakened; if all the sighs, the tears, and suffering; if all the grief, distress, and heartache — if these and every other human passion that sways thought and incites action were to unroll themselves before the mind, the volume that contained them all would be but a paragraph, a murmur, to the silent echoes now hastening to destruction within these four sombre, grim walls.

The history of the foundling asylum at Bordeaux never has, never will, never can be, written. HORACE G. KNOWLES, *U. S. Consul.*

ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

ENTRANCE TO THE UNIVERSITY CLUB, WALNUT ST., PHILADELPHIA, PA. MR. WILSON EYRE, JR., ARCHITECT, PHILADELPHIA, PA.

[Gelatine Print issued with the International and Imperial Editions only.]

A GENERAL view of this building was published in our issue for December 13, 1890.

VENETIAN RENAISSANCE WORK. SKETCHED BY MR. ALBERT KAHN, *American Architect* TRAVELLING-SCHOLAR.

[Issued with the International and Imperial Editions only.]

VENETIAN WELLS SKETCHED BY MR. ALBERT KAHN, *American Architect* TRAVELLING-SCHOLAR.

[Issued with the International and Imperial Editions only.]

THE CHURCH OF THE SUPERGA, TURIN, ITALY.

AFTER a long day spent in travelling over the level plains of Lombardy, this building, looking down from its exalted position, creates a lasting impression since for a long time after it has first been seen there is no sign of a city in sight, and the apparent isolation of the great buildings gives it great impressiveness. As the train pursues its way the city is revealed, and the Superga, the burying-place of Sardinian princes, is seen to overhang the city upon the opposite side of the river. The church was begun in 1715 by Victor Amadeus II, in fulfilment of a vow made at the time the French besieged the city in 1706. Had it not been for the unification of Italy, which made it almost imperative that he should be buried in Rome, the ashes of Victor Emmanuel would have rested in the Superga, beside those of his ancestors.

THE TAYLOR HOUSE, ROXBURY, MASS. MEASURED AND DRAWN BY MR. W. S. ALDRICH, BOSTON, MASS.

DETAILS OF THE SAME.

A GELATINE print of this house, which was built by the Coolidge family about 1790, was published in the *American Architect* for December 4, 1886.

DOORWAY AT MEILLERS (ALLIER), FRANCE.

[Additional Illustrations in the International Edition.]

XVIII-CENTURY WROUGHT-IRON RAILING, SCHLOSS ORTH, AUSTRIA.

[Gelatine Print.]

TOMB OF PHILIPPE POT.

[Etching.]

HOLY TRINITY CHURCH, SLOANE SQUARE, LONDON, ENG. THE LATE J. D. SEDDING, ARCHITECT.

SCHOOL-HOUSE, REDRUTH, ENG. MR. JAMES HICKS, ARCHITECT, REDRUTH, ENG.

THE building is being erected for Mr. T. Collins, who has been many years associated with science and art teaching in the mining district of Cornwall. The walls are being erected of local granite, with granite dressings on the ground-floor, and light-red terra-cotta for the upper floors. The roofs are of Cornish slates.

RESIDENTIAL SHOPS, ALCESTER ROAD, KING'S HEATH, ENG. MESSRS. ESSEX & NICOLL, ARCHITECTS, BIRMINGHAM, ENG.

THIS block of shops is now being erected for Mr. John Collins. The front elevations are faced with best-pressed red bricks, and the whole of the ornamental work is executed in buff terra-cotta. The roofs are covered with Broseley brindled tiles.

NOTES AND CLIPPINGS

AN INTERESTING LIGHT AND POWER INSTALLATION. — Mr. C. F. Brush, the well-known electrician, has erected an interesting plant to supply his residence at Cleveland, Ohio, with electricity for light and power purposes. The installation consists of a large windmill 56 feet in diameter with a total surface of 1,800 square feet, which is mounted on a tower 60 feet high and drives a dynamo working into accumulators. The whole tower is carried on a wrought-iron pivot 14 inches in diameter, round which it is carried, by suitable wind-vanes, to rotate as the direction of the wind alters, so that the mill is constantly kept in a proper direction for the wind to drive. In the upper part of the tower is the main shaft, which is 6 1-2 inches in diameter, and 20 feet long. One of its ends projects through the side of the tower, and carries the mill-wheel. Inside the tower, about the middle of the shaft is keyed a pulley 8 feet in diameter and 32 inches wide. Below this, having the whole of its weight supported on the above belt, is the countershaft, the ends of which run in bearings, which slide in vertical guides. This shaft is 3 1-2 inches in diameter, and has keyed to it one pulley 16 inches in diameter and 32 inches wide for the main belt, from the shaft above, and two narrower pulleys, on each side of the one just mentioned, for the dynamo belts. By means of these belts the dynamo is slung in the same way as the countershaft, so that the whole of the weight of dynamo, countershaft, pulleys, and belts is finally carried by the main shaft at the top of the tower, the total weight borne being 4,200 lbs. The dynamo makes fifty revolutions to one of the main shaft. Automatic switches are fitted which set the dynamo in operation when the speed is sufficient, and an additional regulator is provided which prevents the electromotive force rising above 90 volts. The circuit opens automatically at 75 volts and closes at 70. The current is led to a set of 408 accumulators divided into 12 batteries of 34 cells each. Each cell has a capacity of 100 ampère hours. The house is fitted with 300 incandescent lamps, about 100 of which are in use nightly, and there are two arc-lights and three electric-motors. Experience shows that the maintenance costs but little, but the first cost was very high. — *Engineering.*

THE CENTENARY OF AVIGNON. — Verily this is the age of centenaries. Avignon is now about to have hers, and according to the programme it will leave nothing to be desired. It is in honor of her annexation to France, and the fêtes will last from Sunday to the end of the month. It was in 1791 that Avignon, after having long been under the domination of the Popes, was finally united to France, in conformity with the wish of several ancient kings. The decree of annexation was pronounced by the Constituent Assembly and led to serious troubles throughout Provence, but they were soon suppressed and the reign of the Church there came to an end. From an historical point of view perhaps no town in France is so rich in recollections of all kinds. If we are to place our trust in some authors, the foundation of the ancient papal town dates from the Deluge. This is going back with a vengeance, but historians do not stick at trifles. Avignon, as everybody knows, still possesses its Palace of the Popes, a part of which is now used for barracks. A piece of the old bridge rendered famous by the popular *ronde* is also to be seen on the banks of the Rhone. Avignon has preserved her old ramparts and historical monuments; among the latter the tourist will remember the Church of Nôtre Dame des Doms, a majestic masterpiece of architecture. Of course the event will be accompanied by the raising of a monument in memory of the centenary. The spot chosen for it is the Place de l'Horloge, where the statue of Crillon, the brave general of Henri IV, formerly stood, but which has now been removed to the Place du Palais des Papes. This removal created a great deal of indignation at the time, but it has calmed down and there is no longer any fear of the fêtes being disturbed by it. The monument is called "La France," and comprises groups of figures symbolizing liberty, equality and fraternity, surmounted by the statue of the Republic bearing the tricolored flag. An attempt has been made to induce President Carnot to honor the celebration with his presence, but he has so many engagements of the kind to fulfil that he cannot promise to undertake any more for the present. — *London Globe.*

THE OPENING OF A GREEK CATHEDRAL IN JAPAN. — The last mail from Japan brings news of the opening on March 8, of a magnificent cathedral of the Greek Church in Tokio, which stands on the highest site and is one of the most conspicuous objects in that city. It is described as an imposing structure. The plan is that of a Greek cross having equal arms; the main edifice measuring 91 feet in each direction, and the western end having an additional vestibule 35 feet in

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length, at the sides of which are the baptistery, sacristy, and treasuries, in two stories. The central space is covered by an octagonal dome, 50 feet in span, supported upon solid piers 8 feet thick. Internally the apex of the dome is about 80 feet from the floor; it is ornamented by an arcade and lighted by eight arched windows. The main arches of the transepts are about 40 feet in span and height. Inside are a gilded and painted screen — which occupies the whole eastern end, dividing the chancel into three closed sanctuaries — and rich silver candelabra hanging from the dome and principal arches. Opposite to this reredos, its tiers of massive gilt frames and richly chased interspaces enclosing colored representations of scenes from the life of Christ and the saints, the upper part of the western end of the edifice is occupied by an iron gallery for the choir. As an additional precaution against earthquakes the whole of the brickwork at different heights is bound with stout iron ties spanning the arches and serving as supports for the ornamental candelabra. In the tower at the west end is a spacious belfry, containing eight bells. It is crowned by a light, copper-covered spire, carrying a gilt ball and cross at the apex. The height from the ground to the top of this cross is 126 feet, and that of a similar cross crowning the lantern of the octagonal dome is 115 feet. At the consecration a congregation of over 3,000 Japanese thronged the building, and most of the foreign representatives in the capital were also present. The service lasted nearly four hours, and at its conclusion the first peal of bells ever heard in Tokio rang from the western tower. — *London Times.*

THE CATHEDRAL OF PONCE, PORTO RICO. — After breakfast Ponce unfolded her wonders to us. The cathedral is the centre of everything, with its big plaza in front, and in its neighborhood most of the business is gathered. There are some excellent stores, well stocked with Spanish, French, English and American goods. There is nothing native to be seen in any of the shops, except cigars, and not as many Spanish goods as might be expected in a Spanish colony. The Porto Ricanians, I imagine, do not care to send any more of their money to Spain than they are compelled to. The cathedral, of course, was open, and we entered it through a little postern door and a vestibule in the centre of which the bell-rope dangled. A circular flight of heavy stone steps led to the tower above, but it was too hot to climb. Many years ago the cathedral was a monastery, and the cells that the old monks occupied, now are merely arched niches in which shrines and paintings are placed. In several of these niches were rare old pieces of furniture, benches and chairs, heavily carved, and blackened with age. There were the same gaudy and impossible Virgin Marys and Apostles that are to be seen in all Spanish countries, in costumes that would attract attention at a masquerade. An old servitor went about with a switch, bestowing liberal cuts upon the legs of boys who exhibited too much animation. The most noticeable thing about the building was the arched ceiling. Some wild architect had imitated the groined arches of a Gothic cathedral, but had done it with boards instead of stone. — *W. Drysdale in the N. Y. Times.*

THE LIGHTING OF EGYPTIAN TEMPLES. — In certain papers by J. Norman Lockyer, printed by *Nature*, that astronomer takes up the Egyptian temples with reference to the light their builders permitted to enter. He thinks the ruins prove that the intention was to limit the sunlight which fell on its front into a narrow beam, and to carry it to the other extremity of the temple or into the sanctuary. Sometimes as many as seventeen or eighteen narrow apertures are found between the outer pylons and the wall of the naos. Although he thinks the Egyptians knew nothing of telescopes, yet in the construction of their temples they had the same problem to solve. As we lead the light into the eye-piece of a telescope, so the Egyptians kept the light pure and led it into the dark naos at the extreme end of the temple. To keep the light pure in a telescope, there are diaphragms within the tube, the largest diameter of aperture being nearest the object glass, the smallest nearest the eye-piece. The apertures in the pylons and separating (transverse) walls of Egyptian temples exactly performed the office of the series of diaphragms in a telescope filtering and keeping straight the light entering through the opening between the pylons, preventing reflections from the sides of the temple, and conducting the light a vast distance — as in the case of the great temple at Karnak, for example, a distance twice the length of St. Peter's at Rome.

PLACARDING THE COST OF PUBLIC BUILDINGS. — We observed during our late visit to Bombay that all the public buildings have marble slabs erected in some conspicuous position giving information with regard to their construction. Besides noting under whose Governorship the building took shape, we saw that the names of the Architect, Executive and other Engineers connected with the operations, the dates of the commencement and completion of the work and (*nota bene*) the estimated and actual costs of each structure were given. These last items of information should, where furnished, have a particularly marked effect in checking extravagances, and we therefore put forward the suggestion that the Bombay procedure should be generally followed in the case of all public buildings. — *Indian Engineering.*

THE EXPLOSION IN ROME. — Signor Rodolfo Lanciani, writing to the London *Athenæum* about the recent explosion in Rome, says: "As students of physics and meteorology seldom have the opportunity of experimenting with 265,000 kilos of gunpowder, it may interest your readers to know what results have been gathered by men of science from this colossal blast. A kilo of gunpowder is said to develop in exploding 216 litres of gas; therefore 57,000,000 litres were developed from the Polveriera di Vigna Pia. The power of this mass of gas was such that it could have raised to the height of 450 metres a weight of 117,000 tons. Although the powder magazine was located in a hollow between the hills of Vigna Pia, Monte Verde, and Pozzo Pantaleo, and the main force of the explosions was thus directed upwards, the pressure of the air has been felt equal everywhere — on the tops of the Gianicolo as well as in the deep recesses of the Tre Foutæn — and it has acted with equal energy on flat and vertical surfaces. Gates secured with heavy bolts and doubled with sheets of brass or iron, have been blown open in the Lateran and at S. Saba; and the same effect has been felt even in shut and covered places. Thus at S. Paolo fuori le Mura the pressure of the air penetrating through the gaps of the broken windows was strong enough to break into splinters the heavy glass doors of the four chapels of the transept. The action of the blast manifested itself in two ways — by an earthquake and by an air-wave. The vibratory movement of the earth travelled with greater velocity than the air-wave; so much so that the shock was felt in the city and the suburbs several seconds before the report was heard. Flower-pots, *bibelots*, lamps and bottles were upset in closed rooms protected from any inrush of air. The blast set the barometrical column in violent motion, beginning with a pressure wave of 204 kilos per square metre, followed by a counter-wave of suction. The first was marked by an increase of 14 millimetres in the barometer, the second by a decrease of 14+11 25 millimetres. The power of suction of this last wave was such that 90 per cent of the windows have been blown not inwards, but outwards, the fall of broken glass in the streets wounding some three hundred passers-by. The movement in the barometric column lasted sixty-six seconds. It is believed that one-third only of that prodigious mass of gunpowder had time to ignite; the greater portion was blown up bodily, its explosion taking place gradually. Granules of powder have been collected as far as Ponte Milvio. I, myself, found a charred piece of an ammunition box in a field two and a half kilometres from the Vigna Pia. The report was heard and registered not only at Subiaco, Viterbo and Anagni, but also at Caserta, Ischia and Pesaro, at a distance of more than two hundred miles."

TRADE SURVEYS

LIQUIDATION is the watchword of the hour. Commercial reports show that the volume of business transacted from week to week is about twenty per cent below last year. Strictly speaking, this is an incorrect and delusive statement; it means that wholesalers, jobbers and others are doing twenty per cent less, but it does not mean that retail traders are doing that much less. In point of fact, if the fact could be had, it might and probably would appear that the deficit, as compared to last year, is less than ten per cent, probably five per cent. If the facts could be shown, it would probably appear that stocks of goods in retailers' hands are declining steadily, and are lower now than they have been for twelve months. Salesmen and agents of manufacturing concerns whose business it is to travel up and down the country constantly confirm this statement. Retail buyers are very careful, and salesmen find it more difficult to make them load up with goods than last year. They have become frightened at failures, depression, gold exportations and the general fear of further troubles. The truth is, this liquidation as to accounts and as to merchandise is going to be productive of excellent results; manufacturers have been obliged to restrict production. Fortunately, there are no enormous stocks in warehouses, which are being carried by the banks. Never in our history has production and distribution been in better control. There is an undertone of confidence as a result of this. No matter in what line of trade inquiry is made, the same general answer is given: that stocks are under control, that production is equal, or not in excess of consumption, that prices have reached the lowest possible, or, at least, probable limit, and that trade generally is in a healthy condition. It is better to do a business of twenty per cent less, and do it safely, than run up to last year's volume and have enormous stocks of goods in retail hands, with slim chances of prompt settlement when notes mature. There is a general hesitancy among small business men to stock up just at present, and it will be well if this fear continues. The absence of an urgent demand for money is one of the results of present conditions. The revival of a demand for money may be assuredly counted upon; banks are putting themselves in shape for such a demand. Financial conditions abroad are becoming more healthy; confidence is returning both in home and foreign monetary circles; business men are coming to clearly comprehend the drift of things; the outflow of gold is no longer a source of apprehension. All crop reports are most favorable. European requirements for American exports will be heavy; a better feeling exists throughout the West than in the East. Pig-iron production has suddenly increased thirty thousand tons per week; the coke output has increased from fifty to over a hundred thousand tons. Bridge-builders and the builders of elevated railroads are now placing heavy contracts for material. The lumber trade continues in a rather depressed condition. There is a falling off in the number of projected industrial enterprises in the South; this is partially offset by an expansion of capacity in existing establishments now going on. When the industrial history of 1891 is written, it will be found to compare most favorably with that of 1890. Architects and builders are not at all discouraged under the restricted activity of the present season. Building material has not declined in price for three months. Those constructing engineers who speak for the profession predict that the last six months of the year will see as much activity as the last half of 1890. Railroad managers have a vast amount of work ready to be given out. The lethargy in the textile industries will probably continue until the fall trade is fully inaugurated, and the improvement which then sets in will be measured by the improving distribution of goods during the next sixty days. Mills on cotton goods, ginghams, prints and the cheaper lines of textile goods have been kept pretty busy both North and South. There is a dulness in all lines of hosiery and knit-goods which manufacturers think may not be broken until September; this dulness is not due to a lessening of consumptive demand, but to a desire on the part of the retail trade to meet actual demand and avoid large stocks. Besides, the fact has not been clearly determined to what extent recent tariff legislation will interfere with hosiery importations. A few months ago, manufacturers, in their glee, felt the American market was assuredly their own, and it is not yet clear that they are in error; but cheapening processes have been at work abroad, and some importers incline to think they will be able to hold a large proportion of their old trade. The little industries throughout the Western States are in a safe and healthy condition; very little labor is idle; very little steam-power is off duty. Reports from clearing-houses do not always indicate the actual condition of trade throughout the country, and just at present they are apt to convey rather erroneous impressions. Actual consumption throughout the country has declined very little, if any.

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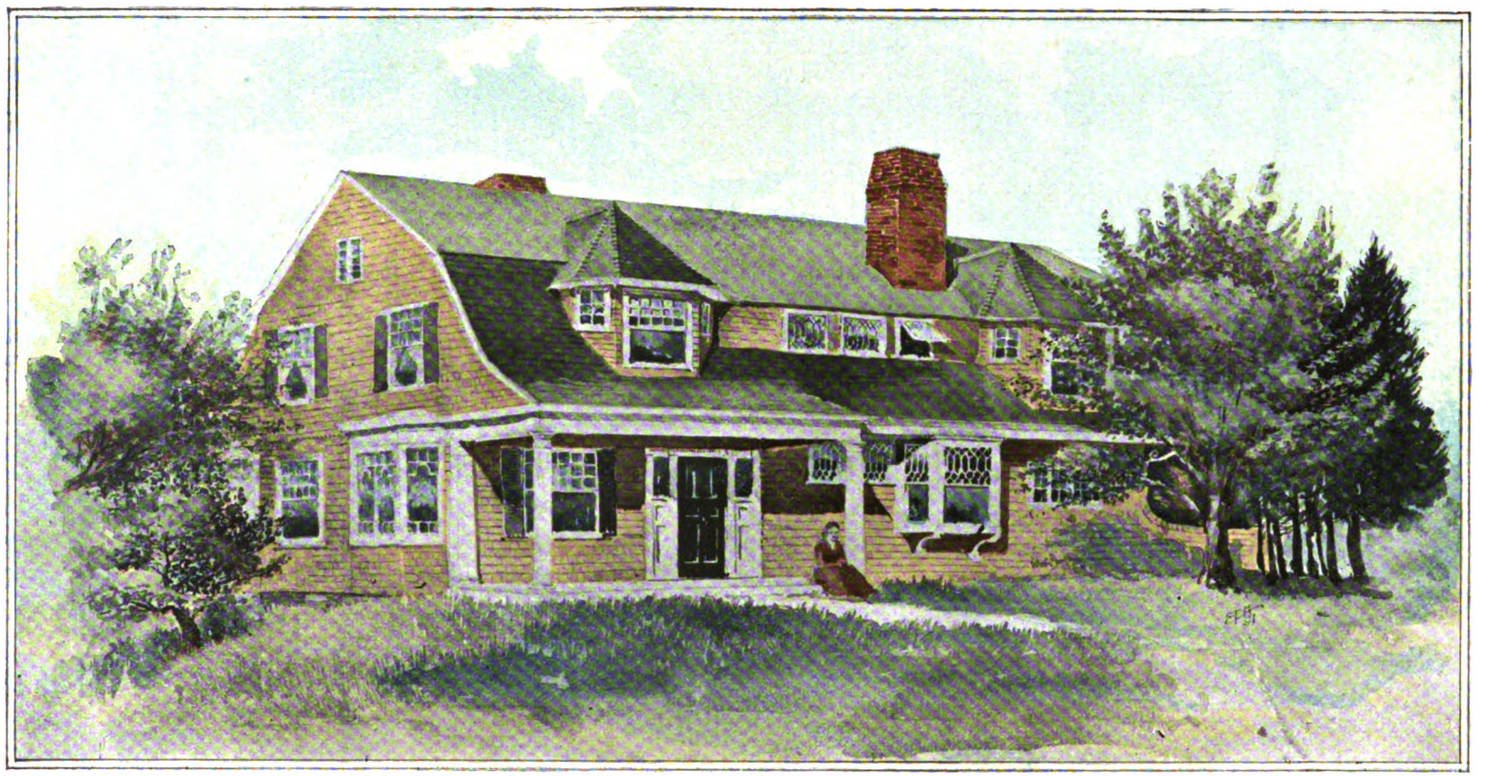

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MR. N. D. C. HODGES, the editor of *Science*, has made some very curious and interesting observations on the effects of lightning, which he proposes to utilize for his own benefit, as well as that of the public. Happening to interest himself in the study of lightning conductors, he was impressed, like most others who have examined the subject, with the uncertainty of their effect. It would seem, on the ordinary theory, that an iron rod, with the point in the air, and the lower end attached to a good earth connection, would conduct atmospheric electricity harmlessly into the ground, but the fact remains that it does not always do so. We know much more about electricity now than we did ten years ago, and Mr. Hodges happened one day to take up a book by Mr. Silvanus P. Thompson, in which a theory was given to explain the enormously high potential shown in the lightning discharge. The theory was that, so long as the electricity of the cloud was distributed over the particles of a mass of fine mist, it would remain at a given tension, depending on the capacity of the particles and other circumstances; but when the mist-particles began to coalesce into rain-drops, their surface being reduced, while their bulk remained the same, there would be a decrease in the electrical capacity of the water in its new form, and, the charge remaining the same, an increase in the potential. This observation suggested to Mr. Hodges the idea that, if the theory were well founded, the converse ought to be true; that if the lightning discharge were received on some large body, which should then be broken up into fine particles of vapor, these, having larger electrical capacity than the solid from which they were formed, would act to reduce the potential of the charge which they carried, and the effect of the lightning would be mitigated.

IN reading the published accounts of the effects of lightning, he found much to confirm this new idea. There were many instances where, for example, lightning, striking the bells in the upper part of a church tower, had run down the wire connecting them with the clock movement in the lower portion, and in each case, while the lightning had shattered the tower above the bells and below the pendulum of the clock, or other termination of the wire, the portion of the building between the two ends of the wire was unharmed, although the wire itself was dissipated into vapor by the discharge. A still more curious case, of a similar kind, was described in the books, which still further confirmed his theory. A palace in France was struck by lightning, and was visited the next day by a Fellow of the Royal Society. The principal rooms, in which a considerable company was assembled at the time of the storm, were heavily gilded, and the furniture was also gilded, and was set in contact with a gilded strip on the walls. The gilding in the rooms had disappeared. It was dissipated by the lightning, but no one in the rooms was injured, nor was any damage done except the removal of the gilding. In the lower part of the house, where there was no gilding, there was a good deal of destruction. Acting on these suggestions, Mr. Hodges has patented a lightning-rod, consisting of a thin strip of copper, to be attached to the house in such a way that the discharge will follow it from the roof to the ground, but of such feeble dimensions that it will be dissipated into vapor, the destruction of this absorbing the energy of the lightning, so as to save everything else about it. It is obvious that a lightning-rod of this sort must be renewed as fast as it is destroyed, and, after the house had been struck once, and its protector dissipated, it would be a rather uncomfortable task to put up a new one while the storm still raged; but this difficulty might, perhaps, be obviated by having two or three strips on the house. If the most exposed of these should be destroyed, the others would still remain, and would probably give ample protection until the return of fair weather gave an opportunity for restoring the full number. As Mr. Hodges's conductors, ready to put up, only cost five dollars apiece, the experiment would not be a very costly one. In a discussion on the subject at a meeting of the American Institute of Electrical Engineers in New York, the interesting suggestion was made, by Mr. Charles Steinmetz, that the reduction of the capacity of the conductor would materially alter the character of the discharge, even if it were not dissipated. If a condenser, or an electrified cloud, is discharged by means of a conductor of large capacity, and, in consequence, of low resistance, the discharge takes place by oscillations, following each other with immense rapidity. As the capacity of the conductor is reduced, the resistance increases and the rapidity of the oscillations diminishes, until, by further reducing the size of the conductor, the resistance may be brought to such a point that there will be no oscillation, but the electricity will traverse the rod only once, moving steadily down to the ground. It would seem that the resistance of the small conductor would incline the current to leave it and jump to a better one; but Mr. Steinmetz said that, on the contrary, the free and rapid oscillation of the discharge in a large conductor produced violent induced currents, which not only caused dangerous secondary discharges, but obstructed the main current, disposing it to jump from the conductor to metal masses of greater condensing capacity. It is well-known that much destruction is caused by disturbances which seem to occur simultaneously with the passage of the main current of lightning, but at various distances around it, and these are frequently attributed to "secondary discharges," or "return strokes"; but Mr. Steinmetz's explanation is new to us, and if, as he thinks, a small conductor of considerable resistance carries away the discharge more quietly and safely than a larger one of low resistance, the science of protection from lightning owes a considerable debt to him, as well as to Mr. Hodges, for these observations.

THE City of Boston has set an excellent example to other municipalities in establishing an ordinance that henceforth all new streets shall be laid out, regardless of property lines in accordance with a plan to be established by a permanent Board of Survey. Ample opportunity is given to the owners of land, and other persons interested, to make suggestions, and present all the considerations which may seem to them important, but, in the end, the Board of Survey fixes all the street lines and grades, to which owners wishing to improve their property must conform, if they desire the streets they may build to be accepted by the city, or in accordance with which the authorities themselves are empowered to construct the streets, at the request of a certain proportion of the owners of land affected, and assess the cost upon all the property benefited. New York has had for many years a somewhat similar regulation, under which land-owners wishing to lay out streets must submit their plans to the city authorities for approval, if they wish their streets to be accepted later; but the Boston ordinance is

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far more thorough, and will result in correspondingly greater benefit to the city and the property-owners. It must be confessed that no town, in this country, at least, needs such a regulation more. Not only were the earlier streets, according to the tradition, laid out in conformity with the paths made through the pastures by the cattle of the early settlers, but, when land came to be subdivided, and more streets began to be desirable, each property-owner was allowed, or rather compelled, as the municipality took no interest in the matter, to lay out streets for himself. Naturally, he could only build streets as far as his land extended, and as his neighbor usually had quite a different idea of the proper way of planning avenues, which he put into practice when it suited him, if, indeed, it ever suited him to make any streets at all, the consequence was that the town grew up around tortuous passageways, varying in width at discretion, and either terminating nowhere, like the present Columbus Avenue, which, after a spacious and stately course of a mile and a half, comes to a violent end just as it begins to think of joining Tremont Street, or returning to the same street that they started from, as in the case of those amazing little burrows between Washington and Tremont Streets, on which some of the best hotels in the city face. In the portion of the town reclaimed by the State, or by powerful corporations, from the sea, the field was, of course, clear, and an excellent plan was carried out, and in the most closely settled portion the vagaries of rustic ignorance and neighborly churlishness have been partially corrected, by the expenditure of many millions in widening and extensions; but in the suburban districts the old system is in full career. In the quarter of Brighton, for example, out of about a hundred streets, forty-two are shown on the maps as ending abruptly in vacancy, while many more form three sides of a parallelogram, returning to the same street from which they started; and in the adjoining town of Newton, which is very intimately connected with the metropolitan district, and has about four hundred streets, one hundred and forty-one, according to the map, end nowhere, if, indeed, they do not lead into ponds or the neighboring river. The injury done by this system of universal liberty in laying out the territory of what is soon to become a closely built city is incalculable. The money spent by the City of Boston already, in widening and extending streets, must amount to many times the valuation of the whole town, streets, houses and all, at the time the streets so dealt with were laid out, and, although its prudent inspiration is a little belated, it is to be congratulated on having provided against similar waste of public funds for the future, at least in the territory which will come under the supervision of the Board of Survey.

THROUGH the kindness of the Census officials, we have been placed in possession of advance proofs of the special report on the statistics of lumber manufacturing and timber products in the United States, which is of very great interest. Unfortunately, the Federal Government possesses no data whatever, or even approximate estimates, to show the area of timber-lands owned by it in Michigan, Wisconsin and Minnesota, so that it is impracticable to make the most important calculation of all, that of the period which will elapse before the standing timber in these States will, at the present rate of consumption, be exhausted. The amount of timber territory and standing timber owned by individual manufacturers is accurately ascertained, and it is shown that this supply will be exhausted, at the present rate, in five years. When this is gone, the only reserve in these States, which furnish nearly all the pine lumber used in the country, is to be found in the public lands owned by the State and Federal Governments. In regard to the Federal timber lands, as we have before said, there are no statistics whatever. Of State lands there are tolerably accurate statistics. Minnesota, which is the only State which owns any considerable quantity of pine land, is said to hold thirteen million acres, containing twenty thousand million feet of standing timber, or enough to supply the sawmills of the State, at their present rate of consumption, for about eighteen years. In Michigan, the amount of timber on land owned by the State is so small as not to be worth considering; and in Wisconsin there is only enough standing timber on State land to supply the local mills for about three months. This is sufficiently alarming, but there is some satisfaction in learning that more care is beginning to be taken of the wood which still remains. After forest fires, for instance, men are sent immediately into the burned district, to cut down the charred trunks. If these can be secured, and brought to the saw-mills, before they are attacked by worms, they can be sold for about half the price they would bring if in a good condition. Contrary to the ordinary impression, the loss by fires in the pine forests is not very considerable, the average annual loss being only less than five per cent of the usual quantity cut; but the conflagrations cause great destruction in the hard-wood growth which succeeds the pine, and which has now become an important part of the timber resources of the three States in question.

THE manufacture of aluminium is now going on in Germany on a very large scale, the principal establishment, that of the Neuhausen Company, much surpassing in capacity any one of the sort in America or England. This factory uses water-power, from the neighboring fall of the Rhine at Schaffhausen. A canal from the main fall brings to the door four thousand horse-power, but of this only fifteen hundred horse-power is as yet utilized. According to the *Deutsche Bauzeitung*, the first piece of metallic aluminium ever obtained was produced by a wet chemical process by Wöhler, who, in 1845, succeeded in extracting a small globule of the metal from its compounds. Later, Deville, with the help of almost unlimited aid from the French Government, repeated Wöhler's experiments, and obtained a considerable mass of aluminium, the cost of which was more than a thousand dollars a pound. The first use to which the new metal was put was the manufacture of a rattle for the baby Prince Imperial. Deville rapidly improved his processes, and reduced the cost of the product to about twenty-five dollars a pound, which, as aluminium is only one-fourth as heavy as silver, made it, bulk for bulk, less costly than silver, in the proportion of about thirty-seven to one hundred. The invention of the dynamo-electric machine gave a great impetus to the manufacture of the new metal, which, with the immense electrolytic or heating power, according to the process used, now at command, was soon produced at a cost of less than a dollar a pound. As we have already mentioned, aluminium has almost entirely replaced silver in the silver-leaf manufactories of Nuremberg, and is employed instead of silver for jewelry and plate, while it is now coming into use for purposes to which silver is not adapted, such as door and window furniture and small builders' hardware, and in the present Electrical Exhibition, at Frankfort, is a display of aluminium goods, which includes, besides these, cuirasses, helmets and armor of the light, but hard and tough metal. Combined with copper, as aluminium bronze, it forms the strongest metal known, far exceeding in tensile resistance steel, phosphor-bronze and delta-metal, while it is hardly subject to corrosion. It appears that the pure metal has also a special value for its beautiful sonorous quality. Bells and organ-pipes of it surpass all others, even those of silver, in the sweetness of their tone. Whether piano and violin strings of it, or of its alloys, have any advantage over those of steel, we are not informed, but it seems as if a thorough investigation into the musical capacities of pure and alloyed aluminium might be interesting and valuable.

AN important architectural discovery has been made in Italy. In excavating near Gerace, in Calabria, on the spot where the ancient Greek city of Locri was situated, the remains of a temple were discovered. The lower part of the west front was found well preserved, with the steps approaching it, and a portion of the long sides. The bases of the columns, with other fragments, showed that the temple was peripteral, hexastyle, the long sides having seventeen columns. Portions of one capital were found in pieces, which, when put together formed a simple, but beautiful Ionic volute, with a six-petalled flower in the "eye," showing, with the fluting and the proportion of the columns, and the form of the base, that the exterior colonnade was of the Ionic order. Besides the architectural fragments, which were in tufa, portions of the pediment sculptures, in Parian marble, were found. In searching for remains of the eastern portion, and of the cella, a part of the foundation of an earlier temple was discovered, somewhat smaller than the subsequent one, but occupying the same site, with, however, the axis forming an angle with that of the later one of about ten degrees. A few bits of terra-cotta were found with the stones of the more ancient building, which indicate that there was a difference in date between the two of about two hundred years.

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SPANISH ARCHITECTURE.[1]—V.

THE RENAISSANCE.

THE Exchange of Saragossa furnishes one of the best types of the earliest Renaissance structures in Spain, although certain traces of the Plateresque can be detected in it. The exterior is sober and imposing, like that of the Florentine palaces; the grand rectangular hall in the interior is covered with vaults on a square plan, having *lierne* and *tierceron* ribs and richly-ornamented keys. They are borne on cylindrical columns with Ionic capitals decorated with astragal mouldings; ornamented bands encircle the shafts a third of the distance from the floor, and at the springing of the vaults there is a sort of frieze composed of shields held up by genii. In this way, the interpenetration of the ribs is concealed, and a crowning for the column is secured analogous to the thick trapezoidal abacus of Byzantine art, to the Gothic abacus and, in Arabian architecture, to the broadening out at the springing of the arch, due to its peculiar horse-shoe shape.

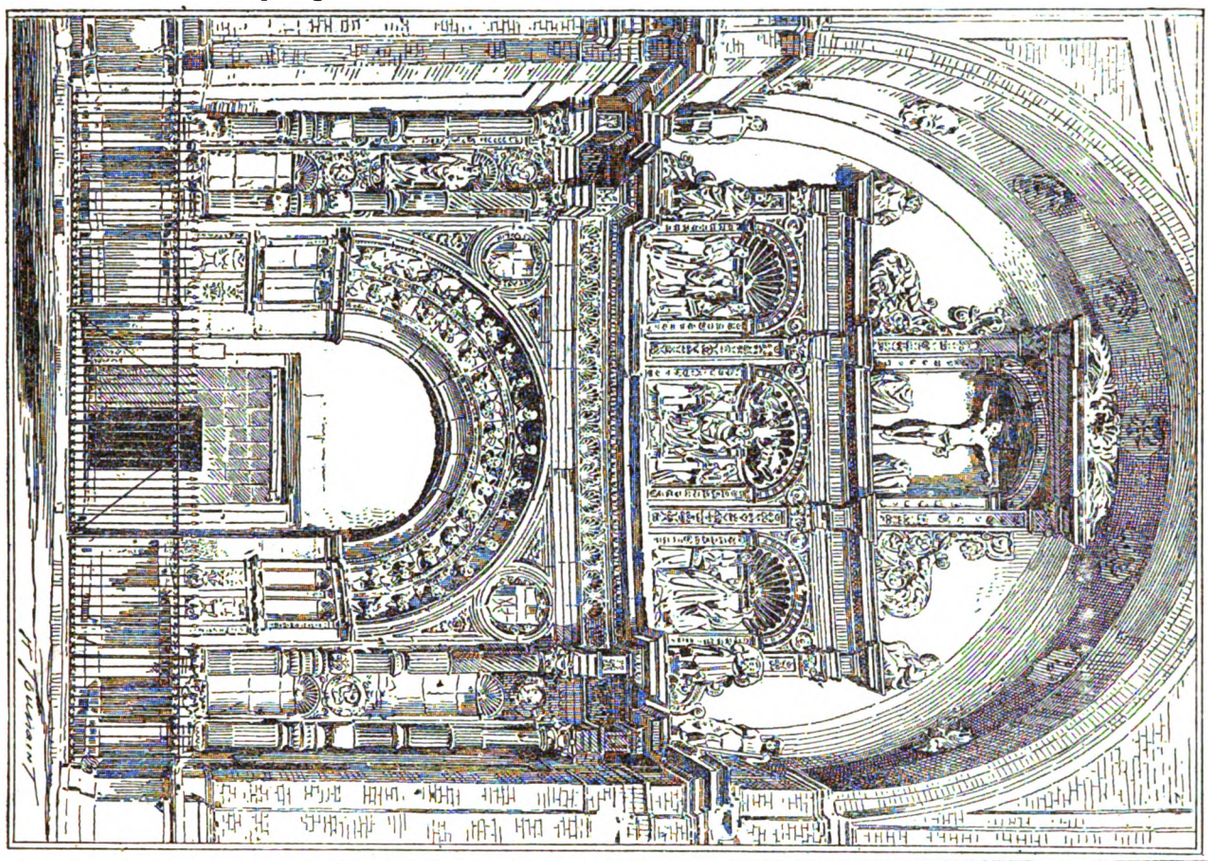

Fig. 39. Portal of the Old Convent of Santa Engracia, Saragossa.

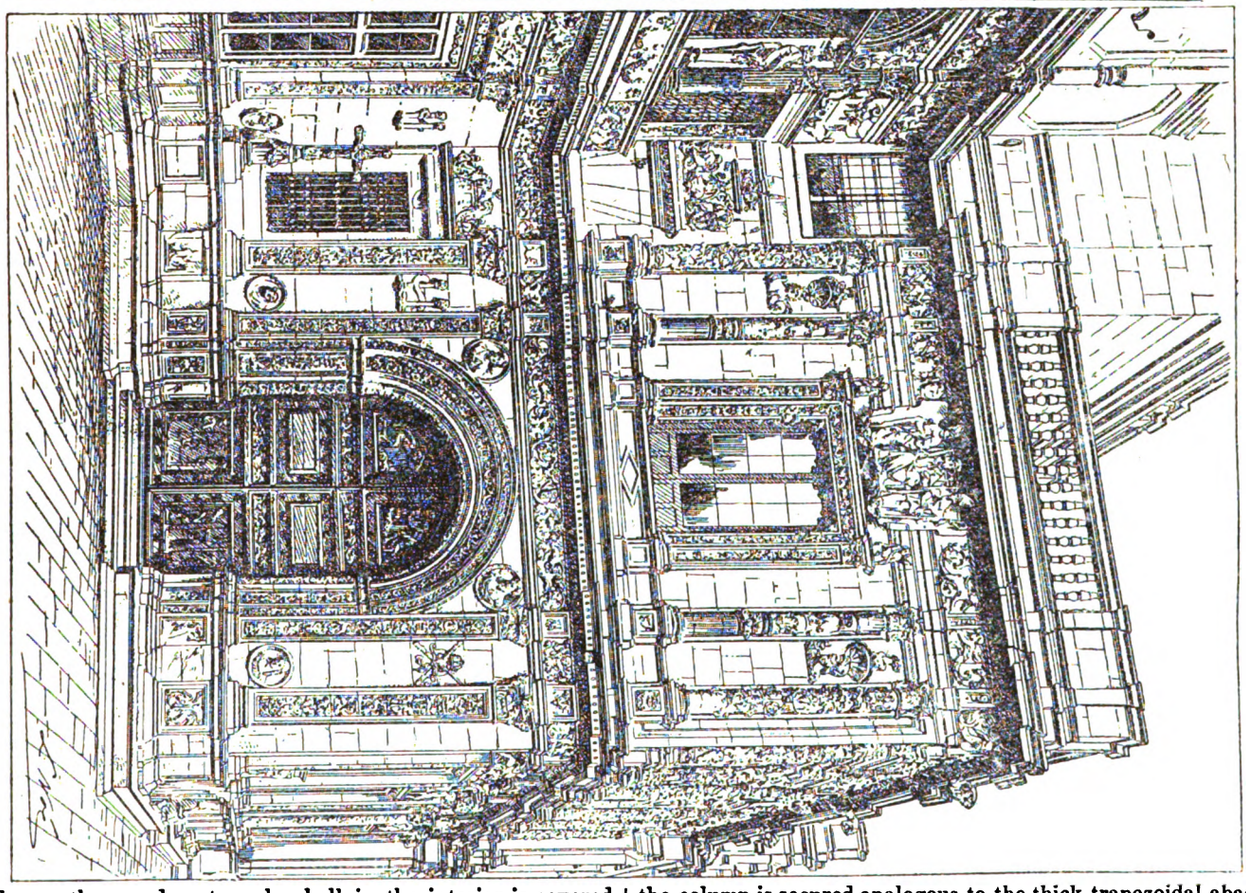

Fig. 41. Ayuntamiento of Seville.

[1] From the French of H. Saladin, in Planat's "*Encyclopédie de l'Architecture et de la Construction.*" Continued from page 178, No. 806.

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The portal of the convent of Santa Engracia, at Saragossa (Figure 39), which has spindle-shaped columns similar to those of the Plateresque style, exhibits a peculiarly composite character The progress is still more clearly indicated in the doorway of the Convent of San Bernardino at Salamanca, where the dispositions are already more Classic (Figure 40); and in the façade of the Ayuntamiento at Seville, with its two orders of pilasters and columns and its square windows (Figure 41). The Italian influence has full sway in both of these edifices, and in the Ayuntamiento the Spanish tradition is scarcely traceable, except in the profusion and style of the decoration.

The façade of the Palace of Charles V at the Alhambra (Figure 42) displays only Classic elements, and may be taken as the starting point of the style inspired wholly from the antique. Every part of the structure, even to the court, which is on a circular plan, and seems to be faithfully imitated from an ancient disposition, bears evidence of the architect's

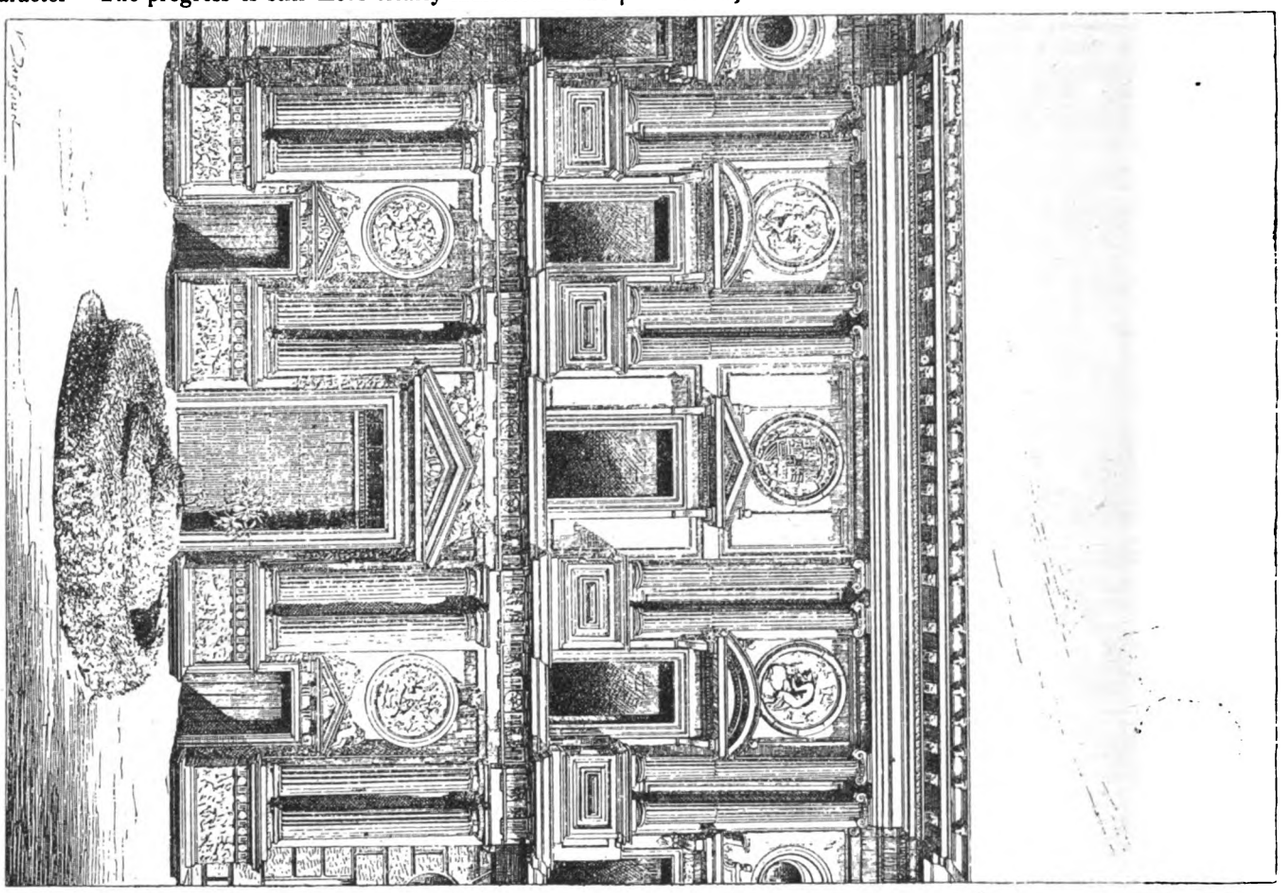

Fig. 42. Façade of the Palace of Charles V. at the Alhambra.

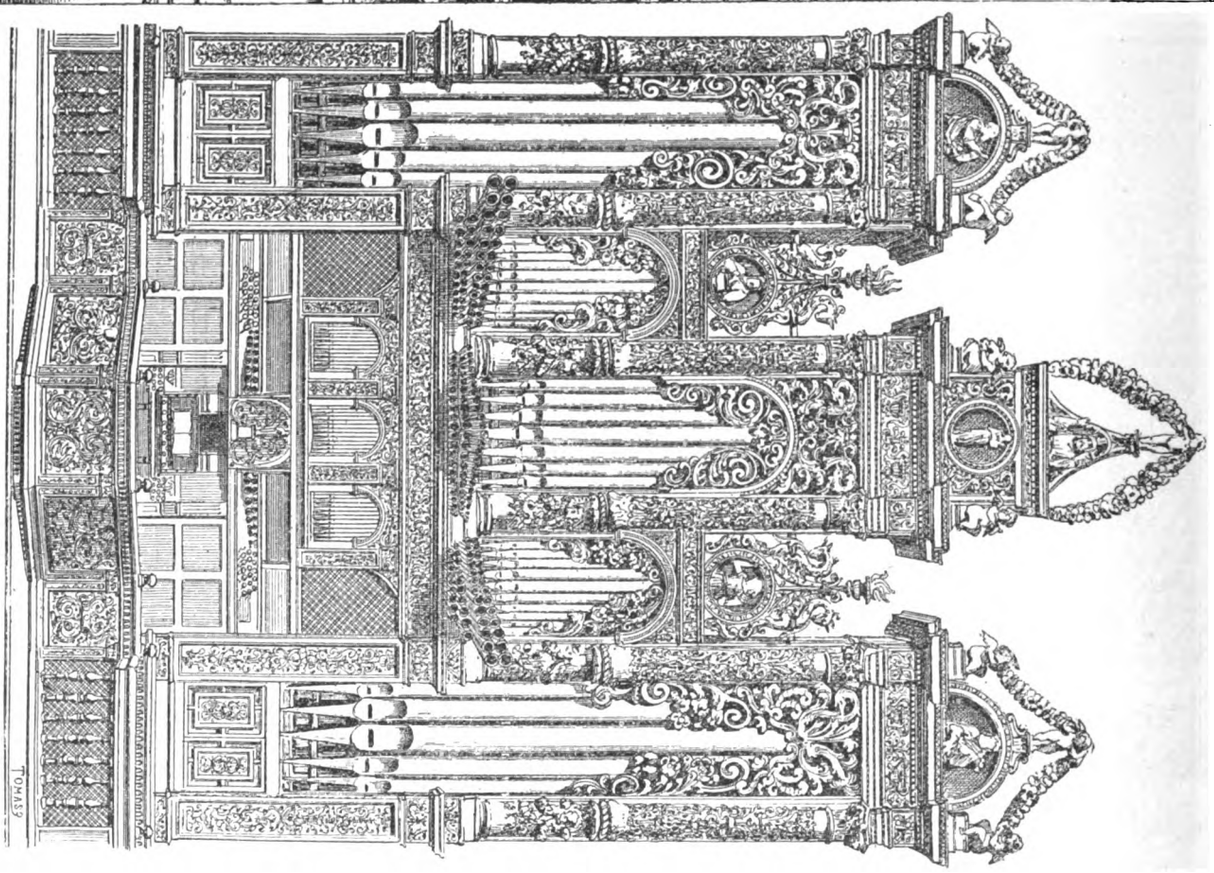

Fig. 43. Organ Case at Nuestra Señora del Pilar, Saragossa.

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determination to keep closely to Roman prototypes and free himself from all the influences of local art.

How wide the gulf between this sought-for severity and the style of the earliest Plateresque or Renaissance productions! The organ-case in Nuestra Señora del Pilar at Saragossa (Figure 43) already exhibits a regular disposition, but what richness is displayed in the decorations of the intercolumnar spaces, and what delicacy in the foliage overspreading the columns and pilasters! However, the embellishments of certain portions of the monumental structures retain the Spanish

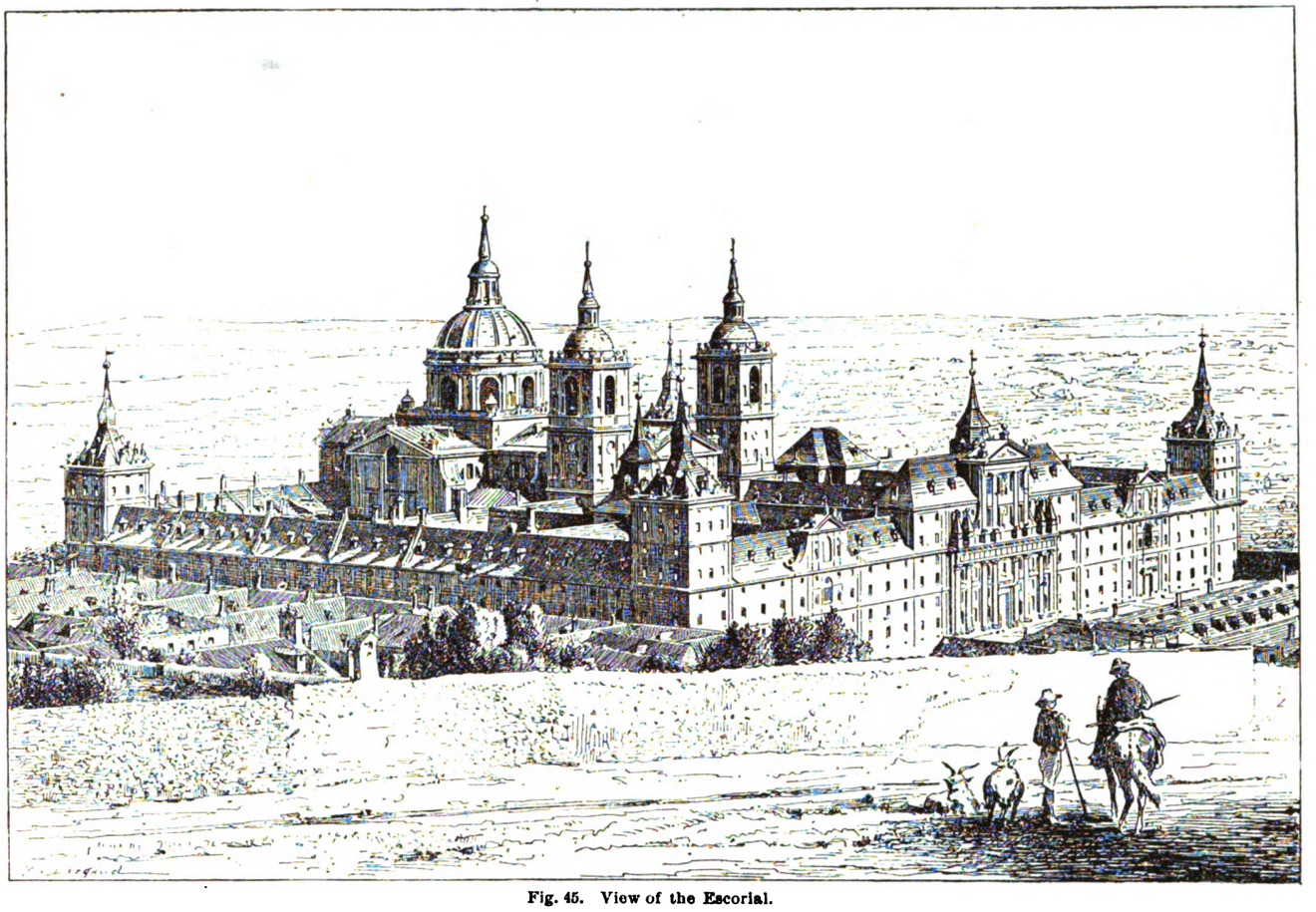

Fig. 45. View of the Escorial.

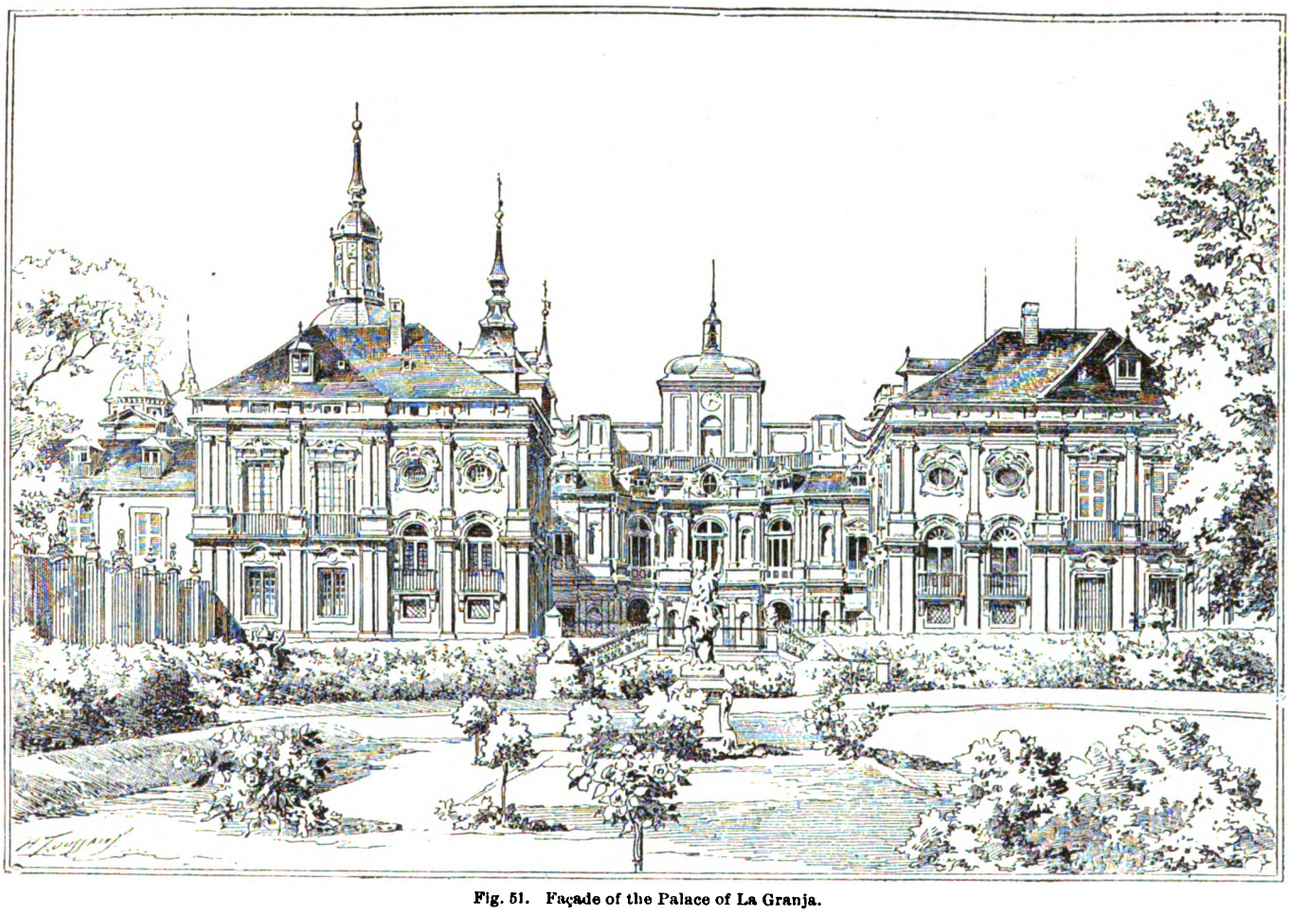

Fig. 51. Façade of the Palace of La Granja.

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character of profuseness, while at the same time the forms are from Italian models. In proof of this, we refer the reader to the celebrated bronze doors of the entrance to the Cathedral of Toledo, known as the Door of the Lions (Figure 44).

The elegance of the *silhouettes* is still maintained, and the Escorial, notwithstanding its severe exterior disposition, outlines against the sky an imposing mass tipped with graceful spires and domes (Figure 45).

The parts of the Cathedral of Salamanca (Figure 46) which were reconstructed at the end of the fifteenth century, namely, the tower dome and that over the nave, are of delicate execution, and the first harmonizes well with the fifteenth-century pinnacles rising at the angles of the tower. The last quarter of the sixteenth century and the beginning of the seventeenth witnessed the flowering out in Spain of what has been improperly termed the Jesuit style, and the prototypes of which are to be found in the great churches of Rome; the Escorial is one of the earliest examples of the style in the peninsula. At this point Spanish architecture loses all originality, and a description of its palaces or churches would be but a repetition, in part, of the history of Italian art beginning with the seventeenth century. How closely the models were

Fig. 40. Entrance of the San Bernardino Convent at Salamanca.

Fig. 44. Knocker on the Door of the Lions, Cathedral of Toledo.

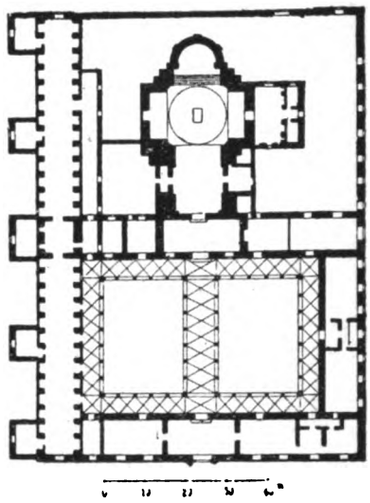

Fig. 49. Hospital of St. John the Baptist, Toledo.

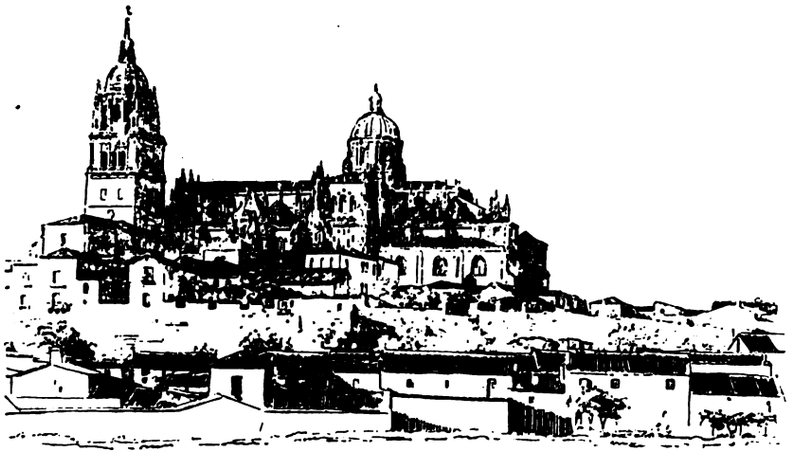

Fig. 46. View of the Cathedral of Salamanca.

Fig. 48. House on the Plaza de las Bulas, Cordova.

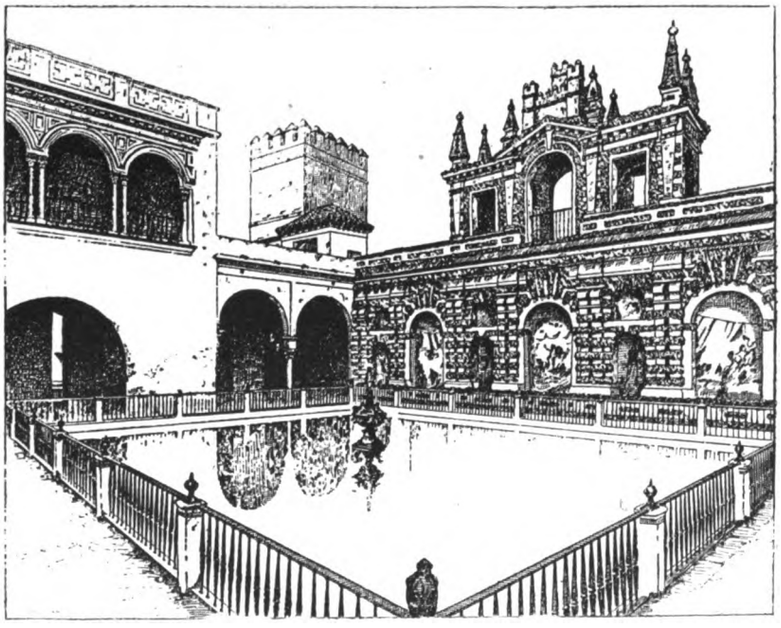

Fig. 47. Fountain at the Alcazar of Seville.

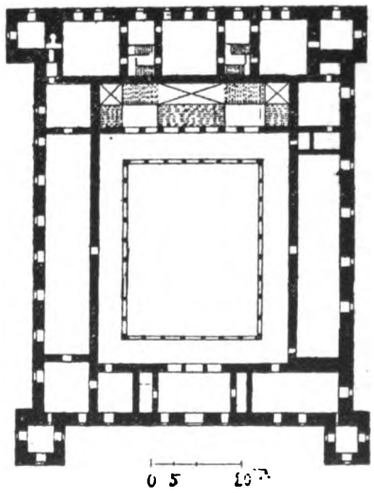

Fig. 50. Alcazar of Toledo.

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followed may be seen by referring to our illustrations of the fountain of the Alcazar at Seville (Figure 47), which is Italian in conception and execution, and of a small house on the Plaza de las Bulas at Cordova (Figure 48), which is interesting for the loggia adorning the upper story.

The plan-dispositions have become more masterly and monumental; the plan of the Escorial is so familiar to every one that we omit it, giving, instead, that of the Hospital of St. John the Baptist at Toledo (Figure 49).

The severe façade of the Alcazar of Toledo (Figure 50), with numerous bays separated by broad piers, is of noble aspect. The highly ornate windows and grilles, however, give it an air of richness; Berruguete, the architect of Charles V's palace at Granada, executed an imposing tower here, resembling, with its two stages of colonnaded porticos, the tower of the Farnese palace at Rome. It is no longer the disposition of the palace of Monterey, nor yet that of the palace of the Guzmans, at Leon, the façade of which is flanked by two huge towers soberly pierced. This façade, with very simple rectangular bays on the ground-floor and windows with pediments in the story above, is crowned by a long series of arches forming loggie. It presents a true type of the Spanish palace in all its nobility and grandeur.

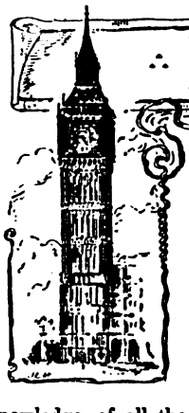
Hereafter architectural richness will be found expressed only in the use of gilding, marbles and faience, as, for instance, the Cathedral and Nuestra Señora del Pilar at Saragossa; and churches with square towers and domes will be seen springing up not only throughout Spain, but all over her colonies in America.

Sometimes, however, as at Seville and Saragossa, enamelled tiles will be found enlivening with their brilliant hues the monotonous outlines of the domes. We have given in the first part of this sketch, with the façade of the Cathedral of Murcia and the Puerta del Perdon at the Cathedral of Valencia, two typical examples of this architecture borrowed from Italy, an architecture in which all possible eccentricities find a place. Perhaps an exception might be made in favor of the Palace of La Granja (Figure 51), constructed by Philip V in memory of Versailles, and certain portions of which will bear comparison with the model.

We have said nothing of Spanish military architecture. Its history in the briefest outline is as follows: The earliest fortifications, like those of Segovia, Ovideo and Toledo, were in rubble-work, or were built of small, unhewn stones with thick joints of mortar; their plan comprised round towers connected by curtains.

Later, as a result of Arabian influence, skilfully constructed fortifications began to appear here and there, as well as strongholds surrounded by concentric lines of defences, such as the citadel of Coca, with complicated loop-holes and towers with channelled facings, borne on conical corbels and slightly projecting machicolations. The same features may be seen in the Alcazar of Segovia and the Castle of Olite (Navarre). The fifteenth-century forms bear the imprint of Northern architecture, which Christian Spain was then copying. Afterward, as at Burgos [Gate of Charles V], the forms became more pronouncedly heavy, and at length we find them imitated wholly from the Italian, although displaying great breadth and a wonderful majesty of *ensemble*.

H. SALADIN.



LONDON

THE NEW PRESIDENTS OF THE INSTITUTE AND THE ASSOCIATION. — TWO LAW-CASES. — DEATH OF MR. PEEBLES AND MR. VERITY. — THE CARPENTERS' LOCK-OUT. — DISPOSAL OF LONDON SEWAGE.

THE new President of the Royal Institute of British Architects is to be Mr. J. Macvicar Anderson. Mr. Anderson is a well-known and respected architect who held the position of Hon. Sec. to the R. I. B. A., for many years, and his thorough knowledge of all the details of the work of the Institute and his well-known courtesy and geniality render him a very suitable president. He has carried out a large number of works, among others, the restoration of the Church of St. Mary-le-Strand and the new drill-hall for the London Scottish Rifle Volunteers.

The Presidency of the Association narrowly escaped a contest. The Committee nominated Mr. Frank T. Baggallay, nephew of the late Lord Justice Baggallay, who has been identified with the Association for many years and who has a complete acquaintance with the new educational scheme of the A. A., which is on the point of being launched. Mr. Hugh Stannus was, however, nominated by a section of members, who professed themselves dissatisfied with the Committee nomination, and it was a matter of great uncertainty how the election would have gone. Both had a particularly distinguished student's career, having attained to the highest honors and both securing in their respective years the Ashpitel Prize. Mr. Stannus, however, at the last moment withdrew his candidateture and Mr. Baggallay was elected unanimously.

The Association have been working very hard lately in their endeavors to get their new educational scheme in order for next session. The suggested curriculum which was published last year, has been finally considered and put into a good form for working. A new paid Secretary has been appointed and new premises with the necessary class-rooms, studios, etc., have been found and are being negotiated for by the committee. Of course, so important a new development as this will entail considerable pecuniary outlay, and the Association are proposing to lay their case before the Royal Institute of British Architects, at their meeting on June 8, with a view of appealing to the whole profession to assist them in their endeavor to place the education of English architects on a firm and satisfactory basis. This is a peculiarly suitable time for the movement, because the Association is now entering upon its 50th year and the event is to be celebrated by a great dinner at the Criterion Restaurant on May 28th. It is difficult to estimate too highly the immense importance of the step the Association is taking. For fifty years it has devoted its attention to assisting young architects in their education. It was founded to supply the deficiencies of the pupil system by the mutual discussions of younger men. Gradually it has extended its scope, and new branches of work have continually been formed, but until the present year it has never wavered from the principle of unpaid mutual instruction supplementary to pupilage. Just think what an important step it is for a body including almost every young architect in the kingdom, and possessing great prestige and dignity to declare in favor of a collegiate system of instruction for architects, for that is practically what it has done and what it means to put into force directly it sees an opening. The progress of the movement will, I am sure, be watched with the greatest interest by every architect in the world.

A very curious case has recently been brought before the Court of Queen's Bench. A well-known firm of architects, Messrs. Archer & Green recently dissolved partnership and Mr. Archer deleted the usual form of superscription from the drawings of the various works carried out by the firm (including the Holborn Restaurant, the Café Royale, and the enormous blocks of flats known as Whitehall Court, and Albert Gate Mansions) and wrote instead the words "Designed by Thomas Archer, F. R. I. B. A." His late partner, Mr. Green, thereupon demanded the replacement of the name of the firm, and on Mr. Archer's refusal, brought an action against him for libel, claiming that Mr. Archer had thrown a grave implication upon Mr. Green's professional character, by inferring that he had had no part in the designing of the various buildings. The learned judge, however, decided that there was no ground of action and refused to allow the case to proceed. The matter is attracting a good deal of attention as it seems to place architects, who design buildings in consultation, in a very awkward position. Another case of equal importance but of a different character was also decided the other day. The supervising functions of the London County Council over buildings erected in the Metropolis are entrusted to a number of officials in different parts of London whose duty it is to see that the Building Acts are properly carried out. These officials are paid by fees on the building, regulated by the nature of the work, but not taking into account the size of the building. It has, however, been held until quite recently that the enormous blocks of flats now being erected all over London, are not to be considered as one, but as many buildings, each flat forming a separate building in the wording of the Act, and therefore requiring a separate fee. Lately, however, a sharp builder in Kensington perceived what he thought to be a flaw in the Act and refused to pay the usual fee, calculated on the number of lettings demanded in the usual course by Mr. Alfred Williams, the District Surveyor of Kensington. He was summoned before the magistrate and ordered to pay, but asked for an appeal. The magistrate decided that there was no case for an appeal and declined to grant one. The builder then obtained a mandamus from the High Courts, compelling him to grant the appeal. He then appealed to the High Court, who decided in his favor. The result of this decision will be that a District Surveyor will have to supervise the erection of a block of flats taking possibly many years to build, for the sum of ten pounds, which is absurdly inadequate. The matter is so important and involves so much, that the District Surveyors' Association, have called a special meeting to consider the question and decide what action to take.

The ravages of influenza have carried off several of our prominent architects. Among others, I regret to have to report the death of Mr. Alexander Peebles, F. R. I. B. A., architect to the Corporation of the City of London, and Mr. Thomas Verity, architect to the Lord Chamberlain and who is well-known from his wonderfully skilful method of planning. He was a premiated competitor in the

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great competition for the Admiralty and War Offices, and carried out Nottingham Municipal Buildings, the new pavilion on Lord's Cricket Grounds and a large number of theatres including the Criterion and the Empire.

The House of Commons has rejected a proposal of the London Tramway Company to carry their tram-lines across Westminster Bridge and along the Thames Embankment to Charing Cross. The proposition certainly deserved the fate it met. It is a very noticeable fact that the presence of trams always leads to lower the character of a locality and up to the present time, they have not been allowed to cross the Thames, or encroach upon any of the main thoroughfares of London, and it is to be hoped that the legislators of the future will not be less alive to the welfare of the Metropolis, in this respect than has the present Parliament.

The Royal Institute of British Architects have increased the sum of money given with the Soane Medallion to £100, and extended the time of travel to six months. It is to be hoped that this wise course will meet with the encouraging reception it deserves.

An act that has a sound of Mediæval chivalry is always pleasant to record in these fast-living days and I feel that a recent course of action taken by the Birmingham Architectural Association deserves that title. The Corporation of Birmingham proposed to erect some new police offices on a site adjacent to the new Victoria Law Courts of Messrs. Aston Webb & Ingress Bell, and decided to inaugurate a limited competition among Birmingham architects for the work. The Birmingham Architectural Association felt that an unsympathetic building next Messrs. Webb & Bell's masterpiece, would do great harm to their work and consequently reported to the Corporation their opinion that the best course would be to give Messrs. Webb & Bell the work. As these are London men, the chivalry of the Birmingham architects deprived themselves of the chance that lay in their hands of carrying out an important piece of work.

The agitation in the labor world has at last reached the building trades, and it is to be feared that we are on the eve of a very severe struggle between masters and men, which must inevitably paralyze the progress of building works, just at the very time when every one is most anxious to see them progressing with rapidity. The struggle began with the carpenters and joiners who agitated for a forty-seven hours' working-week and an increase to 10*d.* an hour in pay. The first step after the delivery of the formal demand was a determination to strike on certain specified firms and on Saturday, May 2, about 2,000 men in the employ of Messrs. Mowlem, Messrs. Patman & Fotheringham and Messrs. Simpson, came out on strike. These firms were unable to obtain new hands, and consequently the Association of Master Builders met together and signified their intention, if the firms named did not obtain a sufficient supply of men before May 23, of immediately closing all their shops and "locking-out" all carpenters and joiners. The three firms were unable to get men and consequently the "lock-out" has been carried into effect. Of course, the progress of building operations is dependent upon the continuance in work of any particular trade and unless an arrangement can be arrived at, which seems far from hopeful in the determined demeanor of the combatants, our buildings must stop and architects given an unasked-for holiday.

In last month's letter, I dealt with the question of the collection of London sewage, reserving the more difficult problem of its disposal to be considered in this letter.

For many years it has been a fond illusion that substantial profit could be realized out of the sale of town sewage, but the experience of the Metropolitan Board of Works has dispelled any such idea in the minds of practical men. In the year 1860, soon after the beginning of the main-drainage works, tenders were invited from persons willing to undertake the disposal of the sewage. The consideration of these tenders was interrupted by a select committee appointed by the House of Commons to consider the question. No very definite decision was arrived at by this committee, but in 1863 another committee was appointed, who reported that it was not only possible to utilize town sewage by conveying it in a liquid state to the country, but that such an undertaking might result in pecuniary benefit to the rate-payers.

In 1865, when the new sewage outfalls came into operation, an agreement was entered into with some persons to take the sewage at Barking, where the northern outfall sewers terminated, and to convey it, or such portions of it as were not previously supplied to agriculturists, through culverts to the Foulness Sands, near the mouth of the Thames, where it was to be applied to the fertilization of land to be reclaimed from the estuary. The expectations of success were very sanguine, and the agreement contemplated a division of profit up to as much as twenty per cent per annum upon the proposed capital of two millions sterling. A sum of £25,000 was deposited with the Board to ensure the work being carried out within a specified time, and a contract was entered into and the works commenced. After a time, however, the prospects of the adventure appeared less encouraging, and the undertaking languished, the works were suspended and eventually abandoned, the £25,000 being confiscated by the Board. This is the only money that the rate-payers of London have ever received in respect of their sewage, which was once considered of so much pecuniary value.

This great *fiasco* was not by any means the final effort, and very many propositions were made by the Metropolitan Board of Works, who were most ready to give every facility for a practical trial of any scheme that seemed to contain any element of possible success. The final result of even the most promising of those experiments has been to show that, although in more suitable localities and with much smaller quantities of sewage, it might be possible to effect a satisfactory application of the process, there was not the least hope of successfully applying it to the sewage of London.

Whilst all these inquiries, investigations and experiments had been going on, the sewage was flowing into the Thames from the two outlets at Barking and Crossness, and a few years after the completion of the main drainage complaints began to be made of the pollution of the Thames in the neighborhood of the outfalls, and of the formation of shoals by the deposit of sewage. These complaints culminated, in 1882, with a representation by the City Corporation to the Secretary of State, with the result that a royal commission was appointed "to inquire into and report upon the system under which sewage is discharged into the Thames by the Metropolitan Board of Works; whether any evil effects result therefrom, and, in that case, what measures can be applied for remedying or preventing the same." The inquiry extended over two years, and in 1884 the Comsioners reported:

"That the London sewage ought not to be discharged in its crude state into any part of the Thames.

"That the solid matter in the sewage should be separated from the liquid by some process of deposition or precipitation, and should be applied to the raising of low-lying lands, or burnt, or dug into land, or carried away to sea.

"That the liquid portion of the sewage remaining after precipitation might, as a temporary measure, be then allowed to pass into the river."

The Board of Works thereupon proceeded to institute a series of careful experiments, which showed that the separation of the matter held in suspension might be satisfactorily effected by means of a treatment with lime and proto-sulphate of iron. The effluent water remaining after precipitation is subsequently treated in the warm weather with permanganate of soda and sulphuric acid. Immediately the success of the experiments justified it, very large precipitation-works were ordered to be erected at the outfalls at a cost of over £650,000. The works comprised additions and repairs to the existing reservoirs, the construction of sludge-settling and precipitation-channels and sewer-outlets, and a large number of buildings, all covering about twenty acres. It is estimated that the works, with all the machinery and equipments, will have cost, when completed, not far from £1,000,000.

The question of the disposal of the sludge resulting from the precipitation of the sewage was an important one. The Royal Commissioners suggested that the sludge should be applied to the raising of low-lying lands, or that it should be burned or dug into the land or carried away to sea. The Board, after careful consideration, came to the conclusion that the only practicable course was to get rid of it altogether by carrying it out to sea and there depositing it. For this purpose, two ships were specially constructed for the purpose of carrying the sludge out to sea and there discharging it.

The system, then, of the collection and disposal of the London sewage may be summed briefly up in the following manner:

It is collected by a vast system of sewers, which ultimately culminate in two great outfalls, one north and one south of the Thames, and which flow in an easterly direction to the precipitation-works at Barking and Crossness respectively. The flow of the sewage in these sewers and outfalls is made practicable and efficient by pumping-stations placed at intervals along their length.

On the arrival of the sewage at the precipitation-works, it is first screened, by the interposition of an iron cage in which a quantity of foreign matter is collected amounting perhaps to one hundred tons per week. It then passes into the precipitation-channels, and is precipitated; the effluent water — deodorized in summer — flowing out into the river on the ebbing tide. The sludge is then pumped from the settling-tanks into the sludge ships, which carry it out to sea and discharge it in a solitary channel between two sands.

This, then, is the drainage-system of London and it would be a misnomer to call it a thoroughly good and economical system. On the face of it, it has many faults and it is challenged by many of the most eminent and scientific authorities of the day as being at once cumbrous, extravagant and inefficient. Sir Robert Rawlinson, the eminent engineer, and Sir Henry Roscoe, the famous chemist, are very severe in their criticisms. It has, however, the sanction of experience. It has been worked out step by step as circumstances seemed to require, and a strong argument in its favor is the fact that the County Council, who came into office disposed to view prejudicially the action of their predecessors, the Board of Works, have adhered to and endorsed what they at first were inclined to criticise.

"Early in the last year the Council," writes the Chairman of the Main-Drainage Committee of the Council, "moved by the discontent of members with their inheritance of this sewage system and by the adverse comments of such notable experts as Sir Robert Rawlinson and Sir Henry Roscoe, instructed Sir Benjamin Baker and their chief engineer, Mr. A. R. Binnie, to examine and report upon the whole system, and their joint production which was presented last month, conveys in complete accord the opinions of two eminent men, both new to the works and as completely competent and free from prejudice as men could be. They report that it will be useless as it is happily unnecessary, to attempt to get a chemically pure river in the lower reaches. The sludge, they say, is a black offensive fluid not injurious to the health of the men employed in its manipulation

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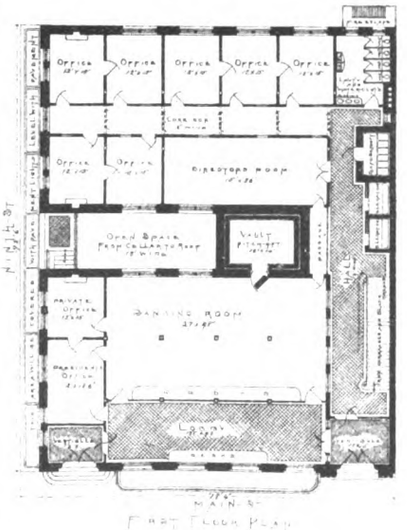
COMPETITIVE PLANS — CHAMBER OF COMMERCE — RICHMOND VIRGINIA

M. J. DIMMOCK
ARCHITECT



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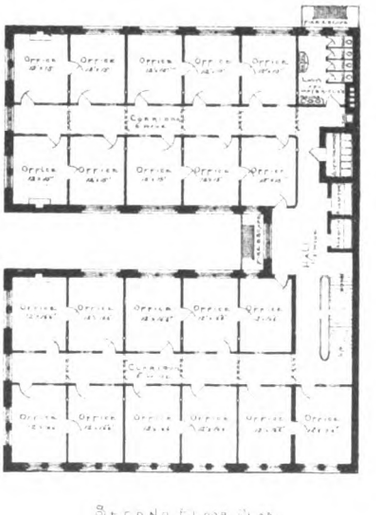

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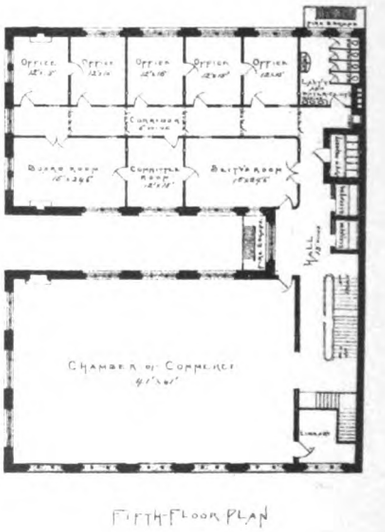

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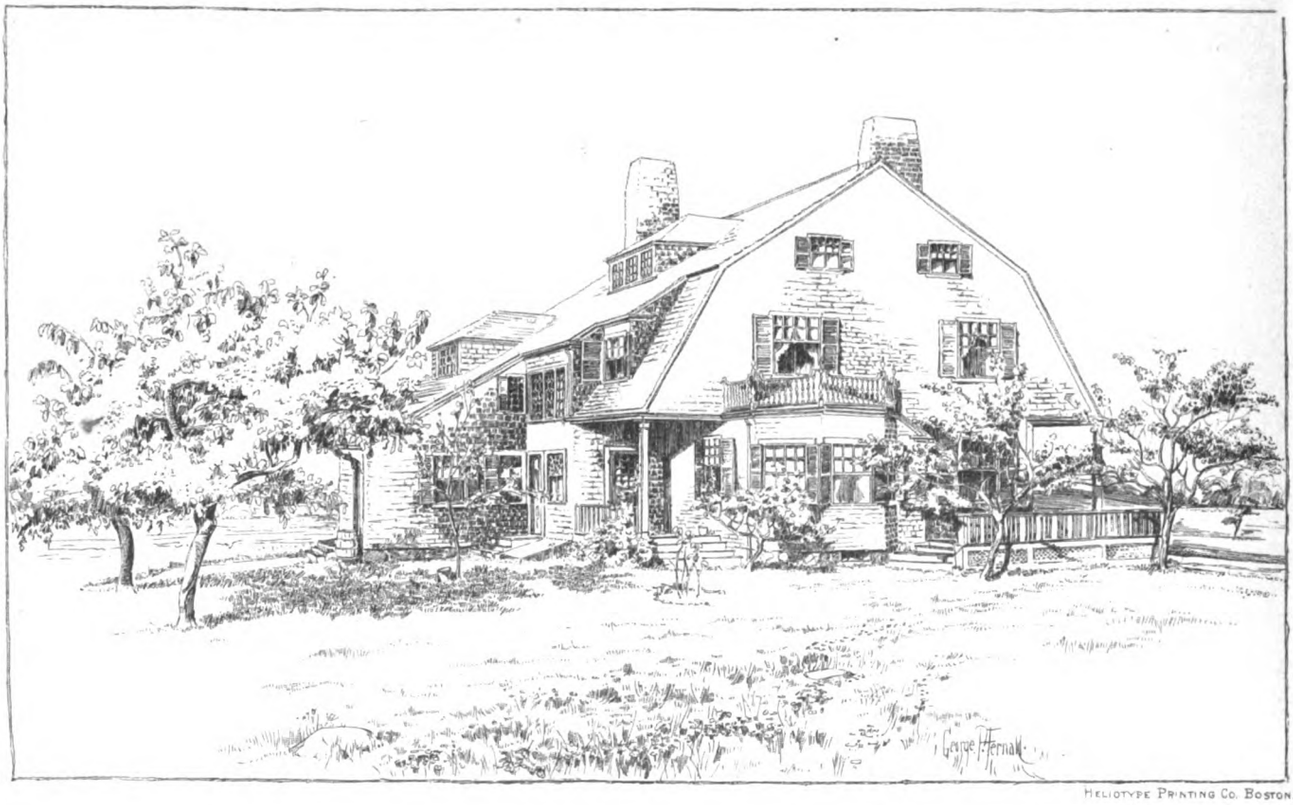

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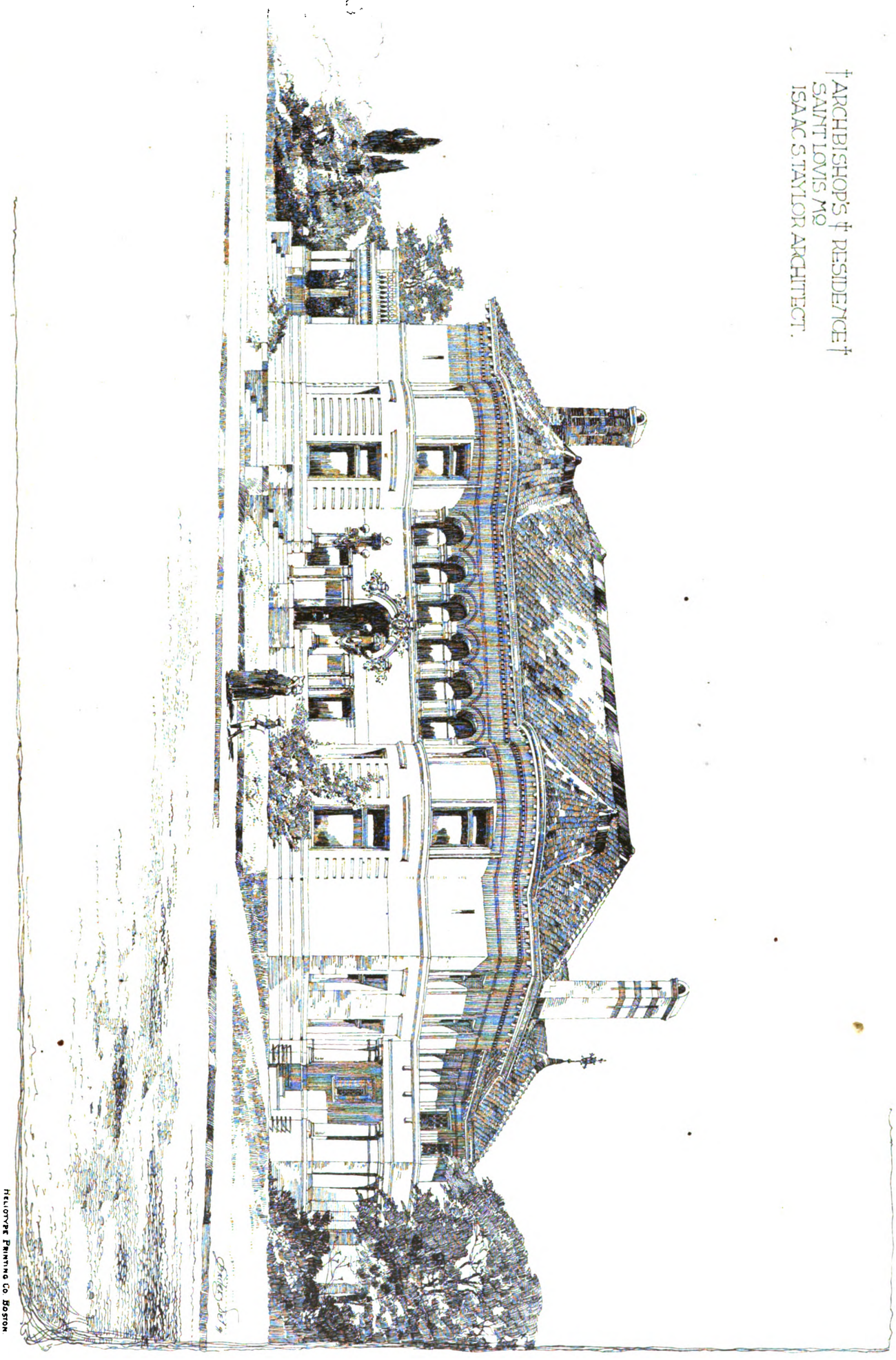

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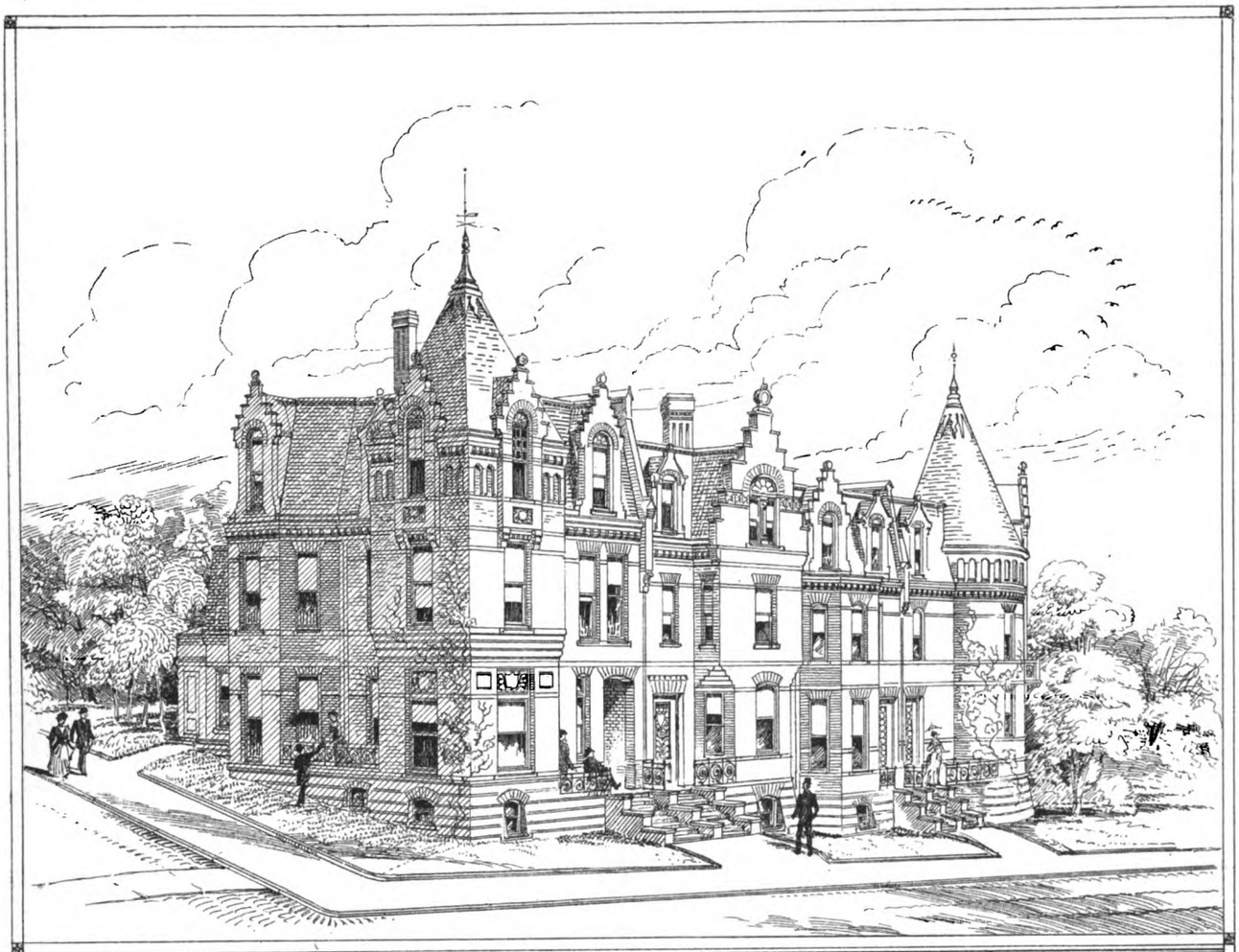

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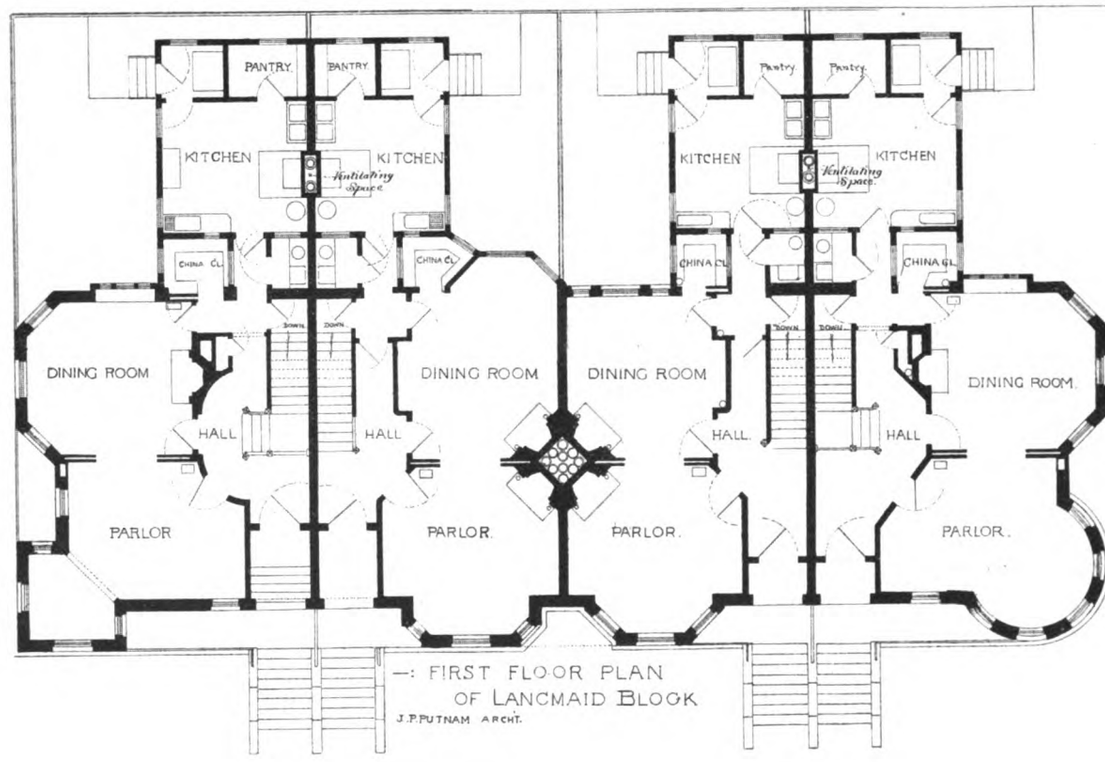

FIRST FLOOR PLAN OF LANGMAID BLOCK

J. P. PUTNAM ARCHT.

HELIOTYPE PRINTING CO. BOSTON.

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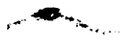

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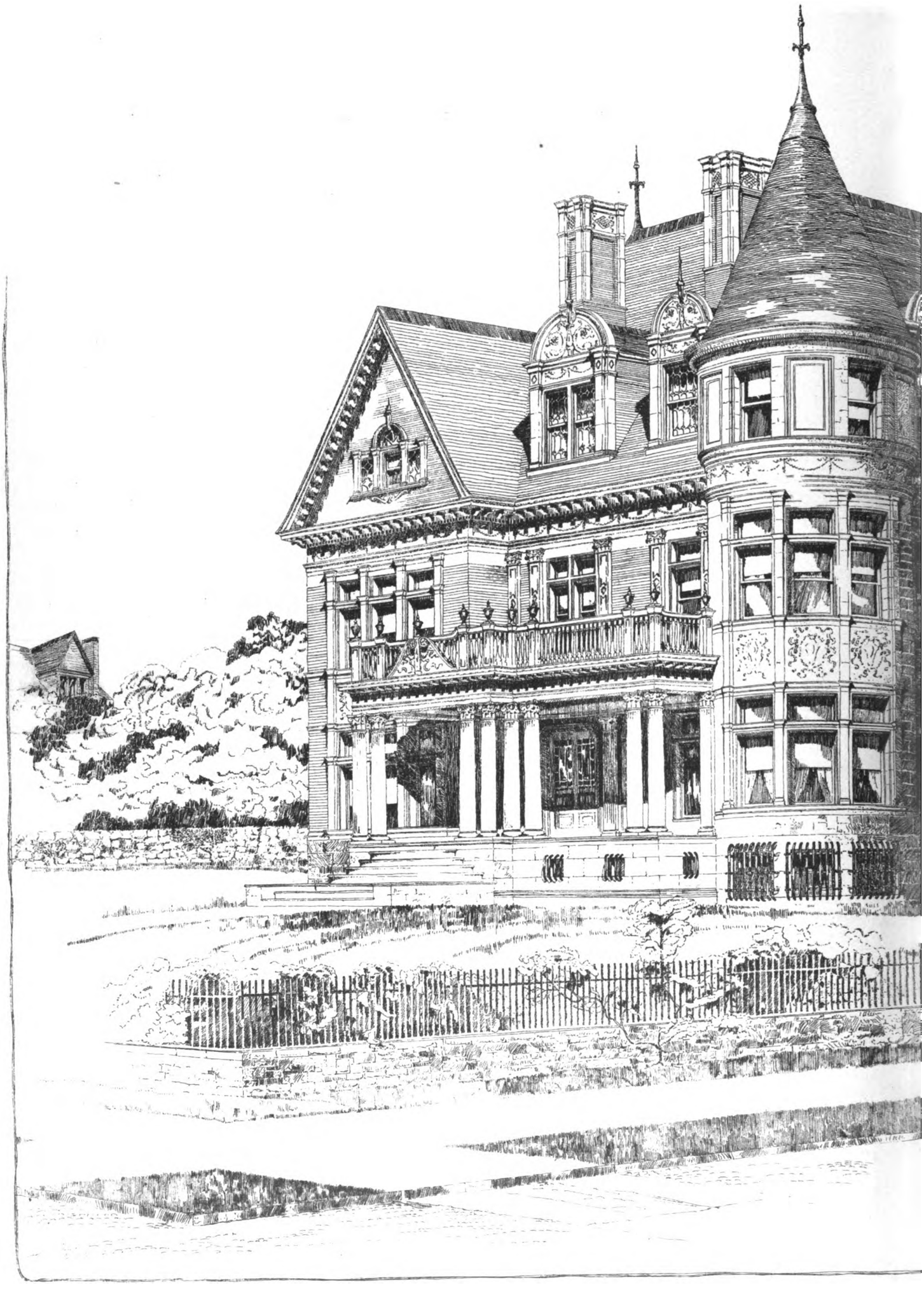

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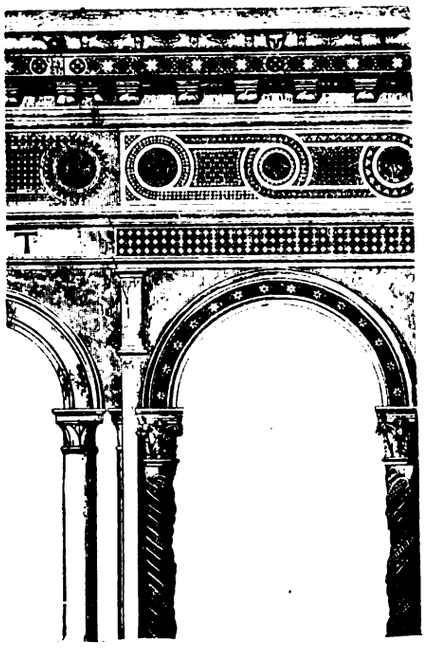
at the outfalls, or on board the sludge vessels. There is, they find, a marked improvement in the cleanliness of the foreshores near the Barking outfall, which was formerly covered with black mud but which is now returning to its original state of a gravelly foreshore with green algæ of the usual type, characteristic of the foreshore of the Thames in its cleaner parts. They have seen sufficient of the benefits already derived from the incomplete works to enable them to advise the Council without hesitation 'to continue the operations now being carried out, as a great improvement in the state of the river will assuredly result when the entire volume of the sewage flowing from both the north and south sides of the Thames is chemically treated and precipitated at Barking and Crossness.' They think it possible, as chemical knowledge advances that the effluent may be improved, and it is obvious that such improved treatment can without difficulty be applied to the existing works. They regard as 'singular,' the allegation that the process adopted is barbarous, which they believe to be a process, 'based upon modern chemical research and involving the use of chemical appliances of a novel and ingenious type.' As to cost, they have no doubt that it is the cheapest system."

This report cannot be regarded as other than highly satisfactory and it shows how a system which seems at first sight almost to challenge criticism is in reality sound and economical.

My next paper will deal with the question of water-supply.

THE ITALIAN SPECIALTIES IN DECORATION AND THE INDUSTRIAL ARTS.[1]—II.

WORKS IN WOOD, PAINTED, INLAID AND CARVED.



Cosmatesque Incrusted Work in the Cloister of St. Paul's, Rome.

AMONG the artistic industries of Italy, one of the most flourishing has been, and still is, that of the manufacture of furniture. Without wishing to go back to an extremely remote period, we ought to fix our observation upon the works in wood of the Middle Ages, and particularly on those which still ornament the celebrated Cathedral of Orvieto. These works, that is, the splendid stalls in the choir, are among the most celebrated productions of the fourteenth century in Italy.

They are due to a very flourishing school, the most flourishing in Italy, that of Siena, which gave to the Italian art of woodworking many and valorous champions; so that it may justly be affirmed that even if the arts of engraving and inlaying were generally familiar to the ancient population of Italy, nevertheless, their true cradle must be held to have been the pleasant city of Siena.

It will be useful to indicate the origin of inlaying and carving before commencing our historical flight. The origin of the art of carving wood is lost, evidently, in the darkness of antiquity. Not so, however, with inlaying, which, however, is sufficiently ancient. The *opus sectile*, or *cerostolum* of the Romans is nothing else than the inlaying, or intarsia, of the Italians of the Mediæval and Renaissance periods. As Agincourt defines it, "intarsia is a union of woods of different colors, with which, by changing the gradations skilfully, it is possible to compose a species of mosaic, representing figures, which may be classed with painting, inasmuch as it produces as many gradations as can be obtained from the palette, imitates the oppositions of chiaroscuro, indicates different planes, and renders, in a word, all effects of linear and aerial perspective." At the beginning, therefore, intarsia was an imitation of the mosaic made with stones, and, as only white and black woods were used, it was limited to representations of temples, colonnades, ornaments, and architectural forms. But when Filippo Brunelleschi, and, after him, Paolo Uccello, called the attention of artists to the study of perspective, eliminating from it many falsities, intarsia-work availed itself with great advantage of this science applied to art. Masaccio in painting, Benedetto da Maiano in intarsia, drew from the laws of perspective the most brilliant effects, using very ingenious means, and this application of perspective led to increasing splendor of color, and to a charming play of light.

The ancients knew two sorts of intarsia; the *tarsia à secco*, which consists in setting in a surface of wood fragments of other woods, or of any other materials; and the *tarsia pittorica*, invented in Tuscany, in the middle of the fourteenth century, which consists in gluing pieces of wood, colored with acids, iron compounds or other chemical agents, upon a groundwork of ordinary wood, so as to form a design. I have said that intarsia was originally an imitation of mosaic of stones. This assertion may best be proved by reference to that in the choir at Orvieto, where nearly all the motives appear to be derived from those used by the Cosmati; stars, polygons of all sorts, crosses of different bright colors on a dark ground, as the Cosmati were accustomed to compose the decorations of baldacchini, stalls and cloisters.[2]

The relationship which I have mentioned is very evident in the so-called "*Lavoro alla Certosa*," inlay work in geometrical figures, which was much in vogue in the Mediæval and Renaissance periods among the Carthusian monks, from which it takes its name; and is to this day in use in Italy, particularly in Lombardy, where may be found specialists who devote themselves to the "intarsia alla Certosa."

Let us not forget Orvieto. The first idea of the choir of Orvieto was given in 1331 by Maestro Vanni dell' Ammannato, a Sienese, who was employed upon the work until his death. He had not the satisfaction of seeing it completed, although he had worthy assistants, among whom were Giovanni Talini and Meo di Nuto, who labored with him until 1340. At the death of Vanni dell' Ammannato, the decorations of the choir were interrupted until about the middle of the fifteenth century. At the end of this long interval another Sienese was charged with the task of continuing the work. This was Domenico di Niccolò, who was succeeded by Pietro del Minella, Antonio, his brother, and Giovanni di Ludovico di Magno, all Sienese artists of great talent, who carried into various parts of Italy the honor of their local art.

If I should write at due length about the arts of carving and inlaying in Italy, I could easily fill a volume in speaking of Siena alone. Here I must limit myself to the observation that if in Orvieto, through the work of Sienese artists, was splendidly begun the revival in Italy of the art of working in wood, at Siena, more than anywhere else, are found works, the splendor of which marks the culminating point of the revival of which I speak.

For the proof of this assertion, we must pass to the fifteenth and sixteenth centuries, which represent, according to the lovers of Classic art, the supreme development of Italian genius. We may thus say, in speaking of Siena, that the seed scattered in the Middle Ages germinated wonderfully in the fifteenth and sixteenth centuries, and in the classic soil of the Renaissance produced flowers of almost incredible beauty and abundance. From Siena the blossoming diffused itself. Florence could not rest insensible to the successes of Siena, its rival in painting for many years, and therefore Florence also, during the Renaissance period, began to distinguish itself in the art of woodworking, which, with that of working in gold, seemed to begin the training of several of its greatest architects, sculptors and painters. And how much modesty was there in those artists, who, from being inlayers or carvers, became eminent architects or sculptors or painters! In Italy, during the Mediæval period, and in the early years of the Renaissance, the most eminent architects often called themselves by the humblest titles, as "*magister lignaminis*," or "*faber lignaminis*," or "*carpentarius*," that is, "master of woodworking." Yet those who were masters of woodworking, that is, of inlaying and carving, were Donatello, Brunellesco, Desiderio da Settignano, Andrea del Verrocchio, Sansovino, Giulio Romano and Primaticcio, all eminent artists, whose works in sculpture, architecture and painting stand among the most beautiful in the history of Italian art in the fifteenth and sixteenth centuries. Among these I have not included those who made more special practice of the arts of carving and inlaying, such as da Maiano, Sangallo, Baglioni, La Cecca, Canozzi, Capodiferro, who have left monuments of inestimable value to art. Nor have I included those painters who did not disdain, as they would to-day perhaps disdain, to decorate pieces of furniture, after having painted the sweetest of Madonnas, or an altar-piece inspired with the loftiest religious sentiment. Among these painters are remembered the names of Giotto, Orcagna, Gaddi, Gozzoli, Filippino Lippi, Signorelli, Pinturicchio, and many others, among the greatest Italian painters, whose glorious place in art is known to every one. I have not placed with these Dello Delli, who at Florence, in the fifteenth century, made a specialty of painting the head-boards of beds, and "*cassoni nuziali*," or marriage chests, with amorous scenes, or pictures of dances and graceful games; and many must have been forgotten among the eminent painters of Tuscany whose palette was occasionally utilized for the benefit of works in wood. It may be said, I believe, that the history of Florentine furniture in the fifteenth and sixteenth centuries could

[1] Continued from No. 805, page 136.

[2] And who were the Cosmati? They were a family of Roman marble-workers, or artificers in marble, who gained celebrity in making pulpits of cathedrals, altar canopies, tabernacles and sepulchral monuments in the churches and basilicas of Rome and the provinces. The Cosmati ornamented pavements, walls and columns with enamels of gold, combined in a thousand fashions with red, blue, white, green and other marbles, and in this way originated a decorative style which came to be commonly called *cosmatesco*, while the work was called *opus cosmatense*, although it might be more correctly named the Romano-Byzantine style. The family of the Cosmati came into notice about the beginning of the twelfth century, and in the fourteenth century became extinct, and with it the style to which it gave its name.

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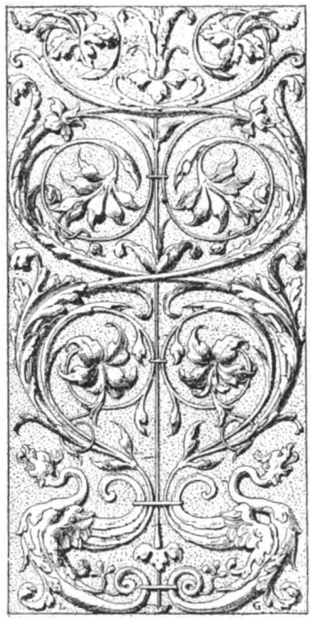
not be written separately from the history of painting. At this period in Florence the cabinet-maker's shop was an appendage to the studio of the painter. The cabinet-maker constructed the body of the furniture, and the painter decorated it. This is one of the most notable characteristics of the furniture of the Italian Renaissance, which was very different from that of France and England, and specimens of this painted furniture are found in abundance in all the Italian museums, as well as in private collections.

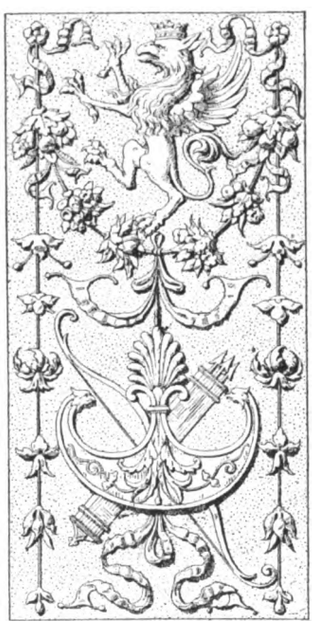


Carved Panel from the XVI Century Pulpit at Perugia.

The reader will be kind enough to recall that I spoke particularly of the multitude of marriage-chests used in Italy during the Renaissance era. In Tuscany, no bride went to her husband's house without taking with her, by way of dowry, at least a "*cassone*," or marriage-chest, which, if not painted, was carved or inlaid; so that Italy is full of these *cassoni*, some of which, through the merit of the paintings on them, are objects of the highest interest. In wandering through the galleries, the sight of so many objects ornamented with painting makes one regret that at this day color should be so rarely used in the decoration of furniture. Yet why should it not be used? Because we are habituated to a dismal monochromism, which saddens the aspect of our cities, and diminishes the cheerfulness even of our houses. The habit of insensibility to color has taken possession of our minds through the false doctrines and misleading prejudices which have been maintained by the followers of Diderot and Blanc. It is believed that the pleasures of color are ill adapted to architecture and sculpture, because they are, or are erroneously believed to be, destructive of grandeur and simplicity. So, after denying that the architecture of Greece and Magna Græcia was painted, the next step was to say that there was no color on the sculpture of the Renaissance;[1] and, from architecture and sculpture, the theory was applied to furniture, which is to-day in Italy without color, cold, heavy and monotonous as an academic discourse.

Speaking of color, I mean strictly painting applied to furniture with a brush, not inlay, even that inlay of which Agincourt said that it endeavored to rob easel-painting of its secrets of linear and aerial perspective, and which was developed later, from mere patterns and groups of geometrical forms, into complete pictorial compositions, such as landscapes, architectural interiors, and so on.

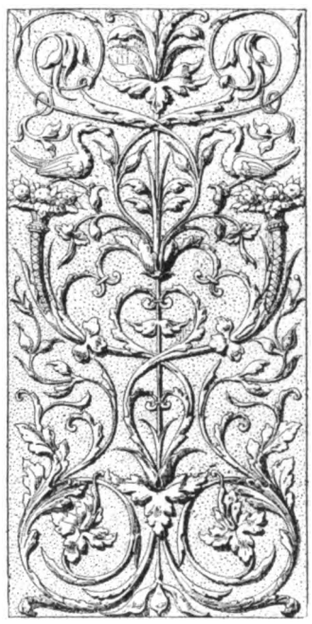
In explanation of this, I will quote from Giorgio Vasari, the author of the biographies of many Italian artists. In the introduction to his book, speaking of painting, Vasari says, "Brother Giovanni of Verona, who in these matters (intarsia) attained remarkable results, improved his works greatly by giving various colors to the wood with dye-stuffs dissolved in water, and with penetrating oils, so as to have materials of both light and dark tints of various colors, as in the art of painting; producing bright points with the very white wood of the box-tree." This Fra Giovanni of Verona, to whom Vasari gives the credit of coloring the wood for such work, flourished in the fifteenth century, and was indeed the one who derived the greatest profit from the practice of such coloring. No one, in fact, understood better than he how to represent flowers with colored woods, or to produce beautiful combinations of lines, or charming effects of light and shade; and, as the author of the decorations on the cabinets of the sacristy of Santa Maria dell' Organo, at Verona, he must have a very high place among the Italian *intarsiatori*. In observing the complexity of the backgrounds, the play of light, and the beauty of the figures, it is almost impossible to believe that the whole should have been obtained by means of bits of wood. Brother Giovanni did not devote himself exclusively to intarsia; he was also very skilful in carving. The carving of the Italian Renaissance had a very delicate and refined character. In its infinite variety of motives, it preferred foliated ornament to figures, partly, perhaps, for the reason that it is easier to carve leaves than figures, and partly because, at that period, carving was principally used in churches, where representations of nude figures are not much in favor.



Carved Panel from the XVI Century Pulpit at Perugia.

However that may be, the characteristic of Italian carving consists essentially in its foliated ornament, which is usually enclosed in symmetrical and geometrical forms, differing thus from the free and natural foliated ornament of the mediæval period in France.

The uniformity of the Italian carving upon furniture in the fifteenth and sixteenth centuries is remarkable, and the more so because a fantastic element predominates in the designs. From Venice to Florence, and from Milan to Rome, the leaf-work carved on furniture rolls itself into spirals, which terminate in buds or rosettes, or sometimes in imaginary figures, or dolphins, which, contrasting with the leaves, give movement and variety to the composition. There is, indeed, a Classic variety of ornament, inspired in composition by the Roman work, as may be readily understood by my readers, who know how great was the influence of the art of ancient Rome on Italian art in the fifteenth and sixteenth centuries. At the present day, perhaps through the effect of the sentiment of independence which is felt in all Italian life, the art of the fifteenth and sixteenth centuries, that is, of the Renaissance, has many enemies and detractors, on account of its lack of spontaneity and freedom of inspiration; but we must remember that the Classic revival of the fifteenth century sent artists to Rome in search of "treasures," like those which Donatello and Brunellesco gathered there; and at Rome, while their imagination was gratified, the artists did not perceive that their force of originality dwindled away. It is needless to say that without originality there can be no art, but only manufacture; and it is in the defence of this principle that the Renaissance is now attacked. It has already suffered at the hands of the moralists and politicians, as well as of the historians of religion; and now, in the name of art, it is the object of the onslaughts of an ever-increasing body of critics.



Carved Panel from the XVI Century Pulpit at Perugia.

The imitation of which I speak, which is extremely evident in architectural compositions, particularly in the sixteenth century, is also evident in Italian cabinet-making, especially in Tuscany. Tuscany has always been the region of Italy which, more than any other, maintained fidelity to the cause of the Renaissance. Brunellesco, who introduced the style in architecture, was a Florentine, and at Florence made the first essays in the reproduction of Classical entablatures, which had fallen out of use during the mediæval period. Michelozzo, the companion of Donatello, and an honored friend of the Medici family, who at Venice and Milan was the first to announce the new precepts in art, was a Florentine; and so were, for the most part, the artists who adorned Naples with its Renaissance monuments, and who assisted Bramante in diffusing at Rome the joys of the same style. As the study of the works of antiquity demanded deep meditation, it developed a deliberation in the movement of the mind which took from it the warmth of spontaneity, and, therefore, the best part of its force. I have said this before, but I repeat it here, to justify a certain coldness and uniformity in the productions of Italian art in the fifteenth and sixteenth centuries. In the cabinet-making of Tuscany, for example, this coldness may be observed. The proportions are beautiful, but the motives are monotonous and uninteresting — commonplace, to use a single expression. The execution is excellent, but without the fire which communicates to any work of art the feeling of life; and, in general we may say that the Italian cabinet-making of the Renaissance is much more a matter of execution than of inspiration. Perhaps this opinion may not be favorably received by my American readers, but I believe that when they have considered the facts upon which it is based, my judgment will find sympathy among them. The monotony of which I speak might have another reason, in that in Italy the

[1] It would be folly to discuss now the question whether the architectural monuments of Greece and Grecian Italy were painted; but it is not so with the application of color to Italian sculpture of the Renaissance period. Apart from the remarkable examples of Luca della Robbia, and his descendants, very many facts have now been collected, which demonstrate that during the Renaissance a true colored sculpture was in vogue in Italy, a sculpture sometimes in marble, but particularly in stucco.

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fate which befell several other arts came also to that of woodworking. Carving and inlaying were practised commonly in Italy, either by monks, who shared the same training and inspiration, or by families, like that of the Della Robbia, who handed down from father to son, and from uncle to nephew, the traditions of their art. For example, at Siena the convent of the monks of Monte Oliveto, which was, in point of fact, at Chiusuri, near Siena, where it still exists, was one of the principal sources of instruction in carving and inlay. From this very celebrated convent came admirable carvers, the best of whom was Giovanni da Verona. Of the families who practised, through a long course of years the arts of carving and inlaying, there would be much to say; here, however, I will mention only the famous Tuscan family of the Del Tasso, which, originating in Florence, filled Tuscany with its work during the fifteenth and sixteenth centuries, and became extinct only in the first years of the seventeenth century.

Outside of Tuscany, however, there were districts where these arts were cultivated with success, as in Venetia and Lombardy, and in these we find numerous families of carvers and inlayers. At Venice, in the Convent of Olivetani, as in the Convent of Chiusuri at Siena, the arts of wood-working were practised and taught by various monks, first among whom was Fra Damiano da Bergamo, who was closely followed by his fellow-monk, Fra Giovanni da Verona. Brother Damiano distinguished himself particularly in his inlaid figure-work, and Brother Giovanni by his inlays with landscapes and architectural perspectives; but both stand unquestionably among the most valorous champions of Italian cabinet-making.[1] Venetia, as a counterpart to the famous family of the Del Tasso, produced that of the Canozzi, or Genesini, from Londinara, a little town in the neighborhood of Pola, which left in Modena, Parma and Padua veritable treasures of carving and inlay, and there were other families less conspicuous.

Leaving Venetia for Lombardy, we find here the Sacchi family of Cremona, which formed one of the most fruitful branches on the genealogical tree of Renaissance woodwork in Italy. By the side of the Sacchi, Bergamo, the birthplace of Fra Bastiano, produced many families of skilful carvers and inlayers, the most prominent of which was that of the Capodiferro, whose works can be best appreciated in the choir of Santa Maria della Misericordia at Bergamo.

We see, therefore, how relationship or close associations of other kinds confined the imagination of these artificers in wood, and how their productions came to have a certain family air and a similarity of taste, which is to be considered in forming our judgment on the arts of carving and intarsia of this period.

But what frightful productiveness do we find during that time! In Italy there is one town, Perugia, which possesses so many works in carving and inlay that a special museum is devoted to them. At Perugia Fra Damiano worked, with a brother, Maestro Stefano di Antoniolo de' Zambelli, and many other skilful Tuscan carvers practised there; but Perugia had, besides, a host of carvers of its own, who were very capable. This town of Umbria, where were born Il Perugino, Raphael, Bramante and Rossini, is celebrated above all for the choirs of its churches. Among these, unquestionably, the most artistic is that of the monastery of S. Pietro della Congregazione Cassinese-Benedettina. Not being able to offer a drawing, I shall have to describe it to give an idea of the richness of this wonderful work. The choir, like the church, is of a hexagonal form, and has two rows of elaborately decorated stalls, divided into two equal parts, and in the middle a door of intarsia-work. At the right and left extend the stalls, twenty in the upper row and fourteen in the lower. Forty-six colonnettes divide the upper stalls, and as many pilasters, fluted, with bases, plinths, architrave, frieze and cornice, of the Composite order, carved and brightened with gold. The lower stalls are formed of twenty-eight panels, with carved divisions. It is not easy to describe the beauty and the variety of the decorations — sphinxes, candelabra, masks, birds, shields, crests, breast-plates, visors, laurel-leaves, inlaid and carved — which adorn the panels of that choir, and the design of which is attributed to Raphael. Some are decorated with figures — Hope, Charity, St. Jerome in the act of beating his breast, Saul throwing himself from his horse, Jesus rising from the dead, and so on. But, as I have said, it is not easy to give an accurate description of a work so rich and sumptuous as the choir of S. Pietro without extending it to an inordinate length, and I wish here, rather than a complete history of Italian furniture, to give only its most characteristic points.

I may, therefore, terminate here the account of the carving and inlaying of the Renaissance, reserving a general view of the epochs which followed in Italy the abundant flowering of the fifteenth and sixteenth centuries, which has been the principal object of my inquiry to-day. That I have said little of secular furnishing, or, rather, that I have confined myself almost exclusively to the decoration of churches in this study is due to this, that in Italy, during the Renaissance, a great part of the occupation of artists consisted in the embellishing of churches. In the churches, therefore, the student must make his principal investigations if he wishes to form a connected notion of the arts of the Renaissance, and particularly of those of carving and inlaying. It is needless to add that the arts of working and inlaying wood were much in demand in the various courts of Italy at the time of which I speak, and that the courts of the period were centres of progress in art, science and letters; but, however sumptuous was the fashion of furniture at these courts, the works in wood in the churches are those which principally claim the attention of the student.

ALFREDO MELANI.

[1] The following anecdote is related of Fra Damiano: Charles V, being at Bologna, on his way to be crowned Emperor by Pope Clement VII, went, on December 5, 1529, to visit the works of art at S. Domenico. Stopping before the inlaid work of the choir, he thought that he had been misinformed about it, and, supposing it to be painting, instead of wood-mosaic, drew a dagger, and, to ascertain the truth, scraped with the point a small portion of the work, which has ever since remained defaced as he left it.

ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

ENTRANCE TO HOUSE OF W. SARGENT, ESQ., COMMONWEALTH AVE., BOSTON, MASS. MESSRS. ROTCH & TILDEN, ARCHITECTS, BOSTON, MASS.

[Helio-chrome, issued with the International and Imperial Editions only.]

THE LANGMAID BLOCK, SOMERVILLE, MASS. MR. J. PICKERING PUTNAM, ARCHITECT, BOSTON, MASS.

THESE houses are now being erected on the corner of Broadway and Thurston Streets, Winter Hill, Somerville, for the heirs of Samuel P. Langmaid. They are of brick with granite and terra-cotta trimmings.

Following the grade of Broadway, each of the upper three houses stands 2½ feet higher in the floor-levels than its next neighbor below, and the design of the façade is made so as to harmonize the fronts without disguising this fact. This is accomplished by so arranging the stone belt-courses and entrance steps and platforms, that they shall be continuous and yet represent different parts of the construction in each building. Especial attention has been given to the sanitary arrangements of the block in the details of heating, ventilating and plumbing, as indicated on the plans.

ARCHBISHOP'S RESIDENCE, ST. LOUIS, MO. MR. ISAAC S. TAYLOR, ARCHITECT, ST. LOUIS, MO.

HOUSE FOR GEORGE P. HOWLETT, ESQ., WEST NEWTON, MASS. MR. C. HERBERT McCLARE, ARCHITECT, CAMBRIDGE, MASS.

HOUSE AT SWAMPSCOTT, MASS. MESSRS. LITTLE, BROWN & MOORE, ARCHITECTS, BOSTON, MASS.

ACCEPTED DESIGN FOR THE CHAMBER OF COMMERCE, RICHMOND, VA. MR. M. J. DIMMOCK, ARCHITECT, RICHMOND, VA.

HOUSE OF OREN SCOTTEN, ESQ., DETROIT, MICH. MESSRS. JOHN SCOTT & CO., ARCHITECTS, DETROIT, MICH.

THIS house is of brick with stone finish.

[Additional Illustrations in the International Edition.]

INTERIOR VIEW OF THE PROTESTANT TEMPLE, LYONS, FRANCE. M. G. ANDRÉ, ARCHITECT.

THIS plate is reproduced from the *Revue Générale de l'Architecture.*

THE MARIENHOSPITAL NEAR STUTTGART, GERMANY. PROF. R. REINHARDT, ARCHITECT.

THIS plate is reproduced from *Architektonische Rundschau.*

DETAILS OF ST. PAUL'S CATHEDRAL, LONDON, ENGLAND.

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TOMBS AT STUTTGART, GERMANY.

THESE illustrations are copied from *La Construction Moderne.*

ATHLETE WRESTLING WITH A PYTHON. SIR FREDERICK LEIGHTON, SCULPTOR.

THIS illustration reproduced from *Building News*, represents the marble statue by the painter-sculptor President of the Royal Academy at this year's exhibition of that Society.

HOTEL OF MME. SARA BERNHARDT, PARIS, FRANCE. M. CHÉRET, ARCHITECT.

SOME time in 1877, Madame Sara Bernhardt built at the corner of the Avenue de Villiers and the Rue Fortuny a somewhat sumptuous and quite classically designed house. Since that time, however, the great tragedienne has abandoned her Phidiases, her Andromaches

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and Clytemnestras, and has thrown herself into more modern creations. Amongst other personages she has rendered for us a never-to-be-forgotten Joan of Arc. To this warlike maiden of the consecration at Rheims, the dwelling-place of one of the great Hellenic queens did not appear a fitting abiding-place. When returning at night, to have to ascend a Louis XIV staircase, when one had just descended the staircase of the Château de Chinon, appeared to her a most shocking anachronism. Impregnated with the spirit of the fourteenth century, which she had studied so well, she desired also to have her encorbelled turrets, her pinnacled dormers, her openwork balconies, her pepper-pots and crested roofs, her machicolations and buttresses flanked with niches. In this frame of mind she applied to a master as fanciful as herself, to Chéret, the author of those attractive play-bills, which every one knows. Chéret, before becoming a pastellist and lithographer, had been a decorator, and even in his spare moments an architect. With a flirt of his very able pencil, he realized Joan of Arc's dream, and in this same Rue Fortuny, joining the old house built in 1877, he has just built for his illustrious client a building which we to-day reproduce from *La Semaine des Constructeurs*. The design is Gothic, vernacular perhaps. At any rate, we will not try to analyze it, for it oversteps all rules and regulations. Perhaps this may be the reason why it is so picturesque. The only thing that it lacks is a little bit of symbolism, but the niches at the corners are empty, and the upper part of the doorway is filled with the most commonplace grille of wrought-iron work. Why did not M. Chéret place in one of the niches a Byzantine Theodora, and in the other a Cleopatra, after the style of the queens of Saba de Chartres? Why didn't he crown his doorway with a bas-relief like that at the Château de Blois, representing on horseback the heroine of the siege of Orleans? Why, upon the front pediment which crowns the centre of his curious work did he not plant a Madonna, with joined hands and eyes lifted to heaven?— allegorical personifications these, which would have characterized this as the dwelling-place of a great artist, who has endeavored to bring to life again, one after another, the Empress of Constantinople, the Queen of Egypt and the Virgin of the Mystery of M. D'Hazaucourt. However these things may be, M. Chéret's work has a very interesting individuality, and that makes it worth publishing. In these times of stupefying uniformity, this house, in spite of its defects, is worthy of attracting attention. Unfortunately this Gothic, *tout fin de siecle* as it is, is already terribly out of fashion. There has just been demolished on the Avenue Montaine one of the most charming buildings in this style (near the Roman house of Prince Napoleon) which has been built in our days. The little turreted villas in the suburbs of Paris, filled with spiral staircases, crenelated posterns and bizarre weather-cocks, are already falling in ruins. Soon there will be nothing left of these bagatelles, due to the caprices of the moment. Let us hope that the hôtel of Madame Sara Bernhardt will not endure the fate which has fallen to M. De Lesseps's. The nineteenth-century Gothic deserves to be transmitted to posterity. The Monceau quarter possesses several curious specimens in this style. The most curious specimen is the house which is found at 116 Rue St. Martin, upon which are seen bas-reliefs showing the origin of the Goths, the Treason of Stilico, and the Goths driven out of Rome. It is the house of Jerome Paturot. It would be melancholy to see these fantasies replaced by the five-storied buildings which every one knows. It is said that the ex-societaire of the Théatre Française already dreams of building at Neuilly a new dwelling-place. Even if she does, let us hope that she will preserve the one in the Rue Fortuny. It has this advantage, which we desire to point out: By its aspect it signalizes the character of the person who inhabits it, and that in these days is no small merit.

BATTERSEA POLYTECHNIC COMPETITION. PROF. ROGER SMITH, SON & GALE, ARCHITECTS.

The design for the Battersea Polytechnic, which, together with a sketch-plan, we copy from the *British Architect*, is the one contributed by Messrs. Roger Smith, Son & Gale in the final competition, and is, in accordance with the stipulated conditions, an elaboration of the preliminary design, and has not been materially altered in any way. The perspective, indeed, has served for both stages of the competition. The building is arranged with straight and well-lighted corridors, and is planned to form a double quadrangle, so as to give complete circulation and ready intercommunication between the parts, while providing for their isolation if desired. Each department on the ground-floor is provided with a separate entrance, while at the same time every department is readily reached from the main entrance, which can be used as the only one when required. A considerable area on the ground-floor is left for future extension, which can also be readily secured on the first and second floors, thus rendering it possible to extend every department should occasion arise.

The ground-floor contains to the right of the entrance the administrative department, on the left the men's social department, and beyond it the women's social department, with separate entrance. The gymnasiums and bath arranged together, and near the social departments, are outside the main building and top-lighted. The shops belonging to the department of technical education form a compact block in the rear of the building, and are lighted with windows and also skylights on the saw-tooth system; each of those where bulky material may be used has an external door. The hall, which is the most important single room in the building, has not only been placed at one side of the site, where direct egress is most easily secured, but has also been brought to the front as befits its importance. It has been specially designed with a view to its being used for public meetings or entertainments of various kinds, as well as for the purposes of the Polytechnic itself. It is therefore arranged to meet the requirements of the County Council, and, while readily accessible from the main building when so required, can be entirely shut off from it without in any way interrupting the communication between its various parts or causing any inconvenience in its working. A tower has been provided for the large water-tanks required by the County Council regulations.

The first floor (the extent of which is indicated by the diagonal lines on the plan) contains the women's technical school over their social department and portions of the men's technical department, including the music-rooms (placed also near the women's rooms), entirely isolated and sound-proof, the technical library placed centrally, and the majority of the class-rooms and one of the lecture-theatres. This arrangement is specially intended to fulfil one purpose suggested for the building by the committee, viz, that it should be used as a boys' school for general and technical education by day.

The second floor contains the art-school and photographic rooms, with northern skylights, the chemical and physical laboratories, lecture-theatre and class-room.

The exterior has been kept very plain by the instruction of the committee, and the authors have sought to produce architectural effect by the disposition of the masses and parts of the building, rather than by the use of ornament or decoration. The materials suggested for the exterior are stock and red brick and terra-cotta, with tiled roofs to the main block and slated roofs to the brick buildings. A system of artificial ventilation, as well as very thorough natural ventilation, is provided, and the heating is arranged to be by hot water. The estimated cost of the building is £39,850.

PETERBOROUGH CATHEDRAL. AFTER A DRAWING BY MR. ARNOLD MITCHELL IN THE *Builder*.

After a period extending over about seven years, the structure of Peterborough Cathedral church has now assumed its former appearance, if we are to except the absence of the four pinnacles or turrets which formerly crowned the central tower. It was during the rebuilding of this lantern, when everything in the nature of fittings was necessarily removed and the foundations generally examined, that the traces of the early church, which we are able to show on the plan, were discovered and plotted. Whether or no these foundations are of the church which immediately preceded the great Norman building begun by Abbot John de Sais, it seems extremely probable that the relative proportions were to some extent taken as a basis for the plan of the Norman work. The dimensions of the Saxon building, of which we have the foundation walls of the transepts and choir still in existence, have been approximately doubled in the Norman work, whether by accident or design. The site of the Saxon nave would occupy the space on which stands the nave cloister-walk and the south aisle of the present nave, and digging — a matter of no great difficulty so far as the garth is concerned — would reveal without doubt the extent westward of the early church, and determine whether or not it had aisles.

The doorway at the northwest angle of the cloister, which is inserted in a portion of a very early wall, happens to be central with the centre of the Saxon church, and may mark the west wall of the church. It is also a curious coincidence that the length of the nave, supposing it to be taken from the wall to the western piers of the Saxon central tower, is exactly half the total length of the present nave of the Cathedral. Fire, so often chronicled in the history of these establishments, destroyed the church existing at the beginning of the twelfth century, and Abbot John de Sais, in March, 1117, began the erection of the Norman work, and we may reasonably suppose that, following the usual method, the work was commenced at the east. Allowing for the larger scale on which his building was designed, the idea may in all probability have occurred to design the new work to occupy some portion of the old site. The space, too, north and east of the first church seems to have been a burial-ground of importance, and Saxon monumental slabs have been discovered in the north transept. The new church would thus occupy the ground that was associated with the early history of the Abbey.

The apsidal termination was adopted here, as in other great churches of the time, the aisles also being finished in a similar manner. One of the side apses was recently laid bare, and has been marked by a step in the south aisle.

Although the design has been pretty closely adhered to throughout the long period which the remodelled church occupied in building, there are many traces in the detail, chiefly in strings and the sudden alteration or abandonment of ornament, which serve to denote that there was a stoppage from time to time in the works. It is westward of the central tower, however, that the more important changes in the structure are apparent. The second column westward of the crossing differs on plan from the first and other columns for eight bays from the central tower. It is quite possible, however, that this alteration in plan was either for the sake of variety (as in the sanctuary, where there are round, octagonal or twelve-sided columns), or to mark the termination of the monastic

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choir westward. This purpose it now serves for the new return stalls recently put up. For six bays westward of this the columns are the same as that of the first column west of the crossing. The respond, however, of this bay is of larger dimensions, and marks the first termination westward, or, more properly speaking, forms one of the piers which supported the west towers which were intended or built. In Transitional times the nave was lengthened by two bays, and shallow western transepts were thrown out beyond the aisles north and south. Its design can be partially traced to-day, but it has been considerably dovetailed into later work.

The desire for future extension was not apparently satisfied, and in the thirteenth century (its exact date is not recorded) the present western "porch" was erected. That it is unique is not to allow that it is in every sense satisfactory. However much we may admire the boldness of the conception, there is a lack of relation to what is behind it which almost causes regret that the earlier front of Transitional times, which certainly expressed its meaning better, was not spared. It is now impossible, of course, to say what the original Norman front was, but the design of the great arches of Peterborough recall strongly the great Norman arch of the west front at Tewkesbury Abbey, a monastery which belonged to the same order, the Benedictine. An interesting point also with regard to the gradual spreading of the design may be suggested. It may reasonably be conjectured that, considering the church to be symbolical of the Cross, the base should take the form of the "Calvary," or steps. In the plan of Peterborough, it is the more apparent on account of the second projection formed by the small towers which flank the last façade; but the projecting towers, as at Wells, might well have been suggested by this endeavor to make symbolism largely enter into the design.

We have given this amount of space to the description of the Norman work, as it forms so large a portion of the existing fabric. The remaining portions of later date occur mostly eastward. As at Ely, a Lady Chapel was erected by William Paris, prior (1274–1296), parallel with the sanctuary on the north side, and was approached from the north transept and north ambulatory. For this purpose the outer wall was pierced, the columns still remaining. In 1651 it was destroyed, however, and also the cloister, and some windows from the latter were placed in the wall, which was again built up.

The remodelling of the east end of the church was the first work of Abbot Richard Aston, 1438–1496, and of Robert Kirton, who succeeded him. The Norman apsidal terminations to the aisles were destroyed, and a rectangular building was thrown out eastward of the great apse, forming an ambulatory, and giving space for five altars against the east wall. The treatment of the external wall of the apse, to make it accord in some degree with the new work, forms a very picturesque portion of the interior.

The wall of the apse had already been pierced in Decorated times, and the very beautiful work was inserted. The two side windows on the outer face of the wall were glazed, and still retain their saddle-bars. The extension, or "new work," as it is still called, rendered this unnecessary, and it not only seems to have been removed, but the three windows which occupied similar positions in the curved bays of the apse were destroyed and perpendicular tracery inserted. The wall of the apse seems at this time to have been richly decorated with fresco consisting of heraldic shields on a diaper background, some considerable traces of which yet remain. The only other additions of importance were the central lantern, of Decorated date, and recently rebuilt from the foundations, and the chapel over a vaulted porch, which was so curiously inserted under the middle arch of the west front, and which is now used as a library. But scanty remains exist of the monuments. Some effigies, including a mutilated one of Bishop John Chambers (died 1557), and a curious tomb and effigy of Bishop Alexander, of Allwalton marble, still exist in the south aisle. A curious early shrine, with rude figures carved on its sides, and finishing with a coped top, has been placed in one of the recesses of the apse on the southeast. A good fragment of ironwork still remains on the door to the west aisle of the south transept, now used as a singing-school and for meetings of the chapter.

The sites are shown of the burial-places of Catharine of Arragon and Mary of Scotland, in the north and south aisles of the presbytery, respectively. Nothing, however, remains of any monument in either case.

Of the former fittings of the choir, some remains of the thirteenth-century choir-stalls are to be seen in the Chapel of St. James in the north transept. Parclose screens remain in the eastern chapels of both transepts, and the traces of the screens which stood between the presbytery arches are still visible on the Norman columns. The font, now in the southwest transept, is modern, with the exception of the bowl, which appears to be of the thirteenth century. With the exception of these few details, however, the interest of Peterborough lies almost exclusively in the early work of the main fabric. Of the abbey which adjoined it on the south, the walls of the cloister exist, and some considerable remains of the infirmary standing southeast of the garth with its chapel. The cloister is apparently of fourteenth-century date, with later details inserted. The early wall at the northwest angle, with its doorway, has been already referred to.

The refurnishing of the choir has been commenced. Blore's organ-screen, throne and stalls have all been removed, and the first portion of the new stalls, designed by Mr. Pearson, are now the only permanent fittings in the choir. The steps on the plan have been shown as they at present exist, but in time further alteration will, no doubt, become necessary when a new reredos is placed in the sanctuary.— *The Builder.*

NEW OFFICES FOR THE SYDNEY BOARD OF WATER-SUPPLY AND SEWERAGE, SYDNEY, N. S. W.

WE copy from the *Australasian Builder and Contractors' News*, the new offices for the Board of Water-supply and Sewerage, which are to be erected at the corner of Pitt and Wilmott Streets, Sydney, a situation readily accessible by tram or 'bus from all parts of the city and suburbs.

The building, which will have a frontage on Pitt Street of 72 feet, and on Wilmott Street of 84 feet, will consist of five stories and a basement, and will be 88 feet from the pavement to top of the balustrade. The basement is 12 feet from floor to ceiling, which at the corner is 5 feet above ground level, thus admitting of ample means of lighting and ventilation, and it consists of accommodation for the plumbers and drainers, fees office, sanitary inspector's office, museum of sanitary appliances, lavatories, strong-room; having a low-level entrance from Wilmott Street, and communicating by central stair and elevator with the Rates office and all the other floors.

The principal or ground floor, as also all other floors, is approached from the centre of the façade on Pitt Street by a short flight of steps in vestibule, 9 feet wide, and is 5 feet above pavement level at this point. On this floor is the office for payment of water and sewerage rates, accountant's and asssessor's department; and the large room, from which start the grand stairs, is 62 feet by 66 feet, and 20 feet high.

On the first floor are the Board-room 30 feet by 20 feet, with a large bay, the president's and secretary's rooms, and room for the staff of the secretary's branch, all of which are 15 feet high. On the second and third floors are placed the water and sewerage engineers, and their staff respectively. On the fourth floor there is a residence for messenger, lavatories, heliographic printing-room, etc., and a flat roof over part of third floor not raised to the full height, forming a promenade or yard to the messenger's residence. The grand staircase, which is a unique feature, and is placed in the centre of the building, is 18 feet by 27 feet, lighted by a dome-light on top, and the corridors, 5 feet 6 inches wide for access to the various offices, run all round. These are divided from the stair-well by open arcaded walls, with balusters and coping, all finished in Keen's cement.

The style adopted is a free and slightly eclectic treatment of the Italian Renaissance; and the ground or principal floor, is treated in a broad manner, so as to form a base for the superstructure, which consists of two tiers with full orders, each tier embracing two floors. On the pediment, which crowns the central features over the principal entrance, is a group representing Hygeia supported by allegorical figures. The capitals of the main columns are slightly French in character, and the corbelling-out of the first floor balconettes and the bracketed architraves here and there suggest the Queen Anne style. But the various elements have been skilfully harmonized, there is a unity of composition about the whole which is artistic and effective, and the design reflects high credit on the designer. The panels in the under part of the large corner pilasters are intended to be filled with bas-reliefs, representing the obtaining of water in early times.

The fronts on Pitt and Wilmott Streets are to be built of double-pressed bricks, with all friezes, cornices, balustrades, pilasters and base 8 feet above street level, of Pyrmont stone, no cement being used externally.

The plans were prepared in the department, under the supervision of Colonel Rowe, F. R. I. B. A., the President of the Board. The total cost, inclusive of fittings, will be about £33,000, and the contractor for the whole work is Mr. Peter Hill of Newtown, Sydney. It is expected that the buildings will be ready for occupation by June or July, 1892.

PORCH, JUMA MUSJID, CHANDERI, INDIA. FRONT ELEVATION.

IT has been said before that Chanderi contains an inexhaustible mine of archæological wealth of the Hindu, Mohamedan and Bundela periods; and the front elevation of the Baniah's house that appeared in a previous issue, has shown the stage of architectural art in the Bundela period. The front elevation, that is published to-day, of the gate of Juma Musjid, treats of an ornamental façade of quite a different style.

The Juma Musjid is said to have been built during the reign of Aurungzebe (1658 to 1707 A. D.); but since there are no monuments of the Mogul period here, I conclude that it was the old mosque of the Pathan period, that was repaired by a local officer of the Emperor; and the character of the ornaments and details, much resembling those of the Pathans in this town, lends me an evidence that it was built before the Moguls came to the land. Though there are many Madarsahs (colleges) and tombs of the Pathans of the Mandoo dynasty here, and an *Eedgah* too, I could not discover any site of a *Juma Musjid* (Friday church), that they must have had to offer public prayers.

The Juma Musjid, as it stands at present, has a quadrangle court, with arcades on the three sides, and the mosque proper with three big domes on the west. The eastern side of the quadrangle with the

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gate is said to have been dismantled by Colonel Jean Baptiste, the French General of the Scindia, who conquered the town from the Bundels in the beginning of the present century; and the present porch was rebuilt by the local Mahomedans with the old materials, arranging them in the order they were originally, with a high back wall to enclose the court-yard of the mosque.

The façade, which was drawn on the spot from actual measurements, represents three elaborately carved bays, of which the central one is the entrance to the mosque proper. The side arches, flanked by elaborate pilasters, cover the platform within for the guards to sit upon; and the inner and smaller niches are on the back walls.

This façade of three bays are equally divided by pilasters, of which the shaft is half-octagonal, the facets are covered with many arabesques, and the bases are elaborately moulded. The end pilasters are half in elevation, flanked on the outer side by half columns, which have a projection of some inches and which betray the Pathan style. Beyond the columns are vertical lines of ornamental leaves and rosettes.

The multifoiled arch, of which the cusps are exquisitely worked out, has three parallel lines of ornaments, and is supported by delicate jambs; and the whole bay is enclosed by three bands of leaves, cruciform holes and flowers. The spandrel is relieved by beautiful rosettes on the two sides of the arch; and the central spandrel has four diminutive arched openings in addition to the rosettes. Above the central arch are three other rosettes with other ornaments in the architrave, which, over the two side ones, shows two lines of Arabic inscription in Togra characters.

Above the architrave is the boldly projecting eave, of which the base shows a band of leaves and flowers. Higher up, the parapet is an ugly work of rubble masonry and plaster of the modern period, which is not in keeping with the highly ornamented façade below. In fact, the parapet destroys the beautiful effect of the whole. Chanderi still has a few artisans in stone, who turn out occasionally good work, which is susceptible of improvement, if encouragement be forthcoming. Recently they built a very fine temple in the debased style. Had they had proper guidance, this debased style they could have avoided. They are now struggling for existence, and I am afraid that, before long, the art of ornamental cutting on stone will die out altogether. Chanderi is also celebrated for fine silk cloths. — *Indian Engineering.*

THE OTIS ELEVATOR FOR THE NORTH HUDSON COUNTY R. R., HOBOKEN, N. J.

A favorite place of residence for persons doing business in New York is the part of New Jersey known as the Palisades. This is a plateau terminating in a steep cliff, 175 feet to 200 feet high, and separated from the Hudson River by a flat plain of varying width. Passengers alighting from the ferries have to be raised to the level of the plateau before they can reach their homes by the various street and elevated railroads that serve the district. From the Hoboken Ferry, which is about a mile from the cliff, the ascent is made by means of cable incline of about five per cent grade. This has an endless cable, to which the cars grip in the ordinary manner. At another part of the cliffs, there is a steep incline worked by cable and winding-engines upon which street-cars and horses are raised and lowered from the flat to the upper plateau.

At the West Shore, or Forty-second Street ferry, the cliffs are too near the river front (900 feet) and too steep to allow of them being ascended by means of an incline. The railway, which is part of the system of the North Hudson County Railway Company, at the upper level approaches the face of the cliff through a rocky cut about 25 feet wide, and comes out at an elevation of 150 feet above high tide. It is carried forward across the river plain by means of an elevated viaduct, consisting of six towers and six steel spans. At the end next the river there are three elevators which lift the passengers alighting from the ferry to the station above, where they enter the trains. The viaduct has been constructed to carry a double track, with a 45-ton Mogul locomotive, followed by a train-load of 2,000 pounds per foot on each road. There are footways outside the railway for those who prefer to walk to the cliff.

The elevators, which are probably the largest in the world, will lift 130 persons 145 feet at each trip, and are being built by Messrs. Otis Brothers and Co., of New York (American Elevator Company, London). The whole elevator-plant and machinery, also the steel viaduct and towers, have been designed by Mr. Thomas E. Brown, Jr., chief-engineer to Messrs. Otis Brothers. As shown by our two-page plate, the elevators are worked on the combined gravity and pressure system, that is, by water from a closed overhead tank in which there is a pressure of air. The water is raised by compound Worthington pumping-engines, having each steam-cylinders 16 inches and 29 inches in diameter, and a water-cylinder 12 inches in diameter by 18 inches stroke. There is also an air-pump on the engine to charge the tank with. This tank has a capacity of 10,000 gallons, while a waste tank of similar capacity is situated at the foot of the hoist, in addition to a supplementary tank of 1,200 gallons capacity.

The elevators are on the well-known plan followed by the Otis Company in America and the American Elevator Company in this country, that is, the cage is raised by wire ropes, which pass round a single purchase block, and are made fast at the other end, to a fixed point (Figure 5). This block is attached by rods to a piston moving in an hydraulic cylinder. To raise the cage, pressure-water is admitted to the upper side of the piston, while the lower side is connected to the waste-pipe. To lower the cage the pressure-water is cut off, and the upper and lower sides of the piston are put in communication with one another, and the water allowed to flow from above to below. A portion of the dead-weight of the cage is counterbalanced by a weight and also by the piston and sheaves. The cages, or cars as they are called, are 21 feet 6 inches long by 12 feet 6 inches wide, and 10 feet high, and each is expected to carry 130 passengers per trip. The entry and exit is so arranged that they can take place simultaneously through double doors, 6 feet wide. Each car is suspended in a steel frame, formed on channels, angles, and plates, and provided with windows that can be opened, and with ample ventilators.

Each cylinder is 38 inches in diameter, and 2 inches thick; it is formed in lengths united by flanges 50 inches in diameter and 3 inches thick; the sections are bolted together at each joint by 24 bolts 1¾ inches in diameter, the joint being made with asbestos cardboard. The lower end of each cylinder is closed with a heavy base-plate (Figure 6), secured to the foundations by two 4-inch bolts. The test-pressure for the cylinders is 500 pounds on the square inch. The pistons are attached to the travelling sheaves by two 4½-inch inch piston-rods of open-hearth steel. The upper ends of these rods are connected to eyes, and fastened to equalizing forgings by 4-inch pins. These in turn are connected to the steel frame, carrying the multiplying pulleys by a 5½-inch pin. The multiplying gears consist of heavy steel frames, built-up of plates and angles, each carrying three sheaves of 60 inches, 56 inches, and 52 inches in diameter. The main sheaves are of cast-iron and 60 inches in diameter. The counterbalance sheaves are of a lighter pattern than the main sheaves and are 54 inches in diameter.

The working pressure is 180 pounds, and with this pressure and a load of 20,000 pounds, the speed of lift is at the rate of 200 feet a minute. To enable the stopping to be performed without any jerk, an apron is attached to the piston (Figure 6) to gradually close the port as the piston reaches the end of its stroke. This apron, which is perforated, passes over the port and gradually reduces the area of opening, so that the car is brought to rest automatically and gently. The main control valve is too large to be worked direct from the hand-rope, and consequently a subsidiary valve and cylinder is introduced for the purpose (Figure 6). The rope turns a wheel fixed to a shaft on the end of which is a crank coupled by a rod to a beam which is connected at one end to the spindle of the main valve, and at the other end to the spindle of the subsidiary valve. When the wheel is turned it operates the subsidiary valve, which admits and exhausts pressure-water from the underside of a subsidary piston connected to the main valve, and in this way it operates the main valve. The arrangement is on the well-known principle of the Servo motor, which renders the motion of the main valve identical with that of the subsidiary valve.

The Otis elevator has earned a high character for safety, and perfect confidence is felt in its security. In the example before us the car is suspended by eight ropes of crucible steel, ⅞ inches in diameter, with six strands, of 19 wires to the strand; two of these ropes are connected to the counterweight, and six to the hoisting gear. The Otis triple-grip safety-gear is employed, and is connected to the ropes in such a way that if one or more of them become stretched or broken, the grip takes hold of three sides of the wooden guide. There are also two governor safeties mounted on the upper part of the tower (Figures 1 and 2). Each is driven by an endless rope passing down the well, round an idler pulley at the bottom, and up again. This rope is made fast to the car at one point, and when the car is running it drives the governor. Should this motion exceed the determined speed the balls of the governor fly out and cause a grip to seize the rope and hold it. On the car, the attachment of the rope is a part of the safety-gear, and the effect of checking its motion is to set this gear in action and stop the cage. — *Engineering.*

NEW HOUSES, HAMILTON TERRACE, LONDON, ENG. MESSRS. BOEHMER & GIBBS, ARCHITECTS, LONDON, ENG.

These houses are now being erected on the site formerly occupied by a portion of the Pine Apple Nursery, with frontages on Hamilton Terrace and Hall Road. About twelve houses in all will be built, thus leaving a considerable area of the ground uncovered, which is to be laid out as general gardens and tennis-courts. Our illustration shows the first two houses, now in course of completion. The elevations are carried out in red brick and stone, the roofs covered with slates. The houses will be handsomely decorated and furnished with all modern improvements, hot water, heating, etc. A large billiard-room on the basement floor opens out on the terrace and private gardens, raised some feet over the grounds at the rear, to which it forms the approach. It is proposed to vary the houses, both in plan and elevation, so as to group them, so far as practicable, into one harmonious whole.

TOMB OF PHILIPPE POT.

[The following notes, which have application to the etching of this noted tomb published last week, were unintentionally omitted from that issue.]

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Philippe Pot, whose memory this remarkable work seeks to perpetuate, played in life the part of a man not unworthy of such a monument. Trusted and honored in turn by Philip the Good, Duke of Burgundy, who made him High Chamberlain, and his son Charles the Bold, for whose three marriages he conducted the negotiations, he next served Louis XI, who conferred on him the Governorship of French Flanders and the position of Grand Seneschal of Burgundy, which office he held throughout the reign of Louis and was continued in by his son, Charles VIII. Yet he does not appear to have been a time-server, but rather a wise and honest councillor who had gained such experience of courts and camps as made his advice and administration acceptable to such opposites as the rash Burgundian duke and his crafty and victorious rival, Louis.

Philippe, whose father, Regnier Pot, had been Chamberlain to Jean sans Peur, and according to some records, ambassador to England, was born in 1428 in the Castle of La Roche, near Beaune. In his youth and early manhood he won a high reputation for valor, both at joust and tournament and in sterner fights, and also for a chivalrous worship of the Holy Virgin, in whose honor he bore the device of *Tant Elle vaut*. The name of Knight of our Lady thus became his, by popular voice, and Mother Church claims him as one of her hero-saints. To this day in his own land of Burgundy, indeed, the legends of his piety and his prowess are made the subject of dramatic performances in the boys' schools. Many wondrous tales are told of the brave deeds of young Philippe at the siege of Constantinople and elsewhere in the East, but history fails to substantiate these stories. We know, however, that when about twenty-five years old, he was present at a great festival (the *Votes des Faitsans*) given by Philip the Good at Lille, in 1453, for the purpose of inciting his adherents to join the Holy War against the Grand Turk, and was foremost among the knights who in the gallant fashion of the times swore "on the pheasant," before God, the Virgin Mary and the ladies, their vows to acquit themselves of various deeds of high emprise among the infidels. At this magnificent spectacle, the preparation for which had taken three months' time and which followed a tournament given by the Duke of Cleves, one of the tables held as a centrepiece a huge pasty containing twenty-eight musicians, and at the plate-laden buffet, a live lion was chained, with the device, *Ne touchez point à ma Dame*. Duke Philippe, for the first time since his murdered father's death, discarded his mourning and appeared in a dress glittering with a million crown's worth of jewels, and among other strange and rare shows there given, was a dramatic performance of the story of Jason and the Golden Fleece, and a presentment of a giant dressed like a Turk, who led an elephant with a battlemented castle on his back, inside the castle being a lady representing the persecuted Church, who wept and made piteous appeals for succor.

Some thirty years after this, Philippe Pot was a prominent figure at another notable assemblage, the famous meeting of the States-General, called to consider the deplorable condition of the kingdom and to order public affairs, which was held at Tours, after the death of Louis XI, in the great hall of the Archbishop's Palace, in February, 1484. The young King Charles VIII, was enthroned on the central dais and surrounded by the chief officers of the crown, the cardinal and princes of the blood, with the attendant nobles, while fronting them sat the deputies, some two hundred and fifty in number. The question in time coming forward of the guardianship of the young King and the claims of the Duke of Orleans to govern during his minority, Philippe Pot arose and as chosen deputy of the nobility of Burgundy, spoke some plain and bold words which were worthy of that eloquence which had gained him the name of the "mouth of Cicero" and well deserve repeating: "Before everything," said this outspoken orator, "I would have you well convinced that public authority is the affair of the people, and it is the people who have confided it to kings. Those who have possessed themselves of it in any other way, without the consent of the people, have only been reputed tyrants and usurpers of the rights of others." Then he showed that it was evident the young king could not govern alone, but required counsel and assistance. At the same time, the government was not to be entrusted to one prince of the blood or to many, for it belonged to all the people. It is to the people who have given authority to whom it should return, in order that they may take again what is their own, all the more that a long suspension of government or a bad administration is the ruin of the nation. "Now I call the people," said Sire Philippe, "not only the populace who are the subjects of the kingdom, but the men of all the estates; and I understand that under the name States-General the princes themselves are comprised, and that among all those that inhabit the kingdom, none is excluded. In short, nobody denies, I should think, that the royal princes are included in the nobility, of which they are only the most distinguished members." The speaker then endeavored to confirm the idea of the sovereignity of the people by historic example and precedent. This speech strengthened the representatives of the people who ended by strictly limiting the power of Orleans and committing the care of the young monarch to his sister, Anne of Beaujeu, in accordance with his father's will.

Messire Philippe died in 1494, age sixty-six years, and the family domain passed to his niece, Anne, who became the ancestress of the famous constable of France, Anne de Montmorency.

The monument here illustrated, was erected in honor of Philippe Pot, by the Cistercians of Citeaux, in gratitude for benefits conferred on their convent by him and his family. The good fortune which had followed him through life remained even with his carven counterfeit after death and the tomb stood unscathed in the great Abbey Church of Citeaux, through all the civil wars of the sixteenth and seventeenth centuries, which wrought no little destruction therein. It escaped also the perils of the Revolution of 1789, when the Abbey was suppressed and almost entirely destroyed, through the good offices of Comte Richard de Vesorotte, in the private museum of whose son at Dijon it was preserved until a year or two since when it became the property of the State and was transferred to the Louvre, where it forms one of the chief ornaments of the new Salles du Moyen Age.

In this monument, which is peculiar in that the bearers are represented as not only standing but carrying forward the bier, the marble recumbent effigy is not shown as asleep but praying with open eyes. It is of full life-size, the eight monks being slightly smaller. Each of them bears on his arm the scutcheon of some noble family allied with the dead man, and the life-like effect of the mourning figures was heightened by the skilful use of color. The inscription on the side of the slab is written in old French and gives a biographical sketch of the subject of the monument. It is not positively known whether what is now preserved of it represents the whole composition, nor is there any chronicle of the name of the author or authors of this famous work. M. Louis Gonse, however, in his recent work on Gothic Art, is inclined to believe it due to the genius of one Antoine Le Moiturier, of Avignon, nephew of the celebrated sculptor, Jacques Morel. Le Moiturier, he says, lived at Dijon until the end of the fifteenth century and died there about 1500, in poverty and almost forgotten, in spite of the tribute to his skill paid by Michel Colombe, who, when passing through Burgundy in 1511, having been called to Savoy to aid in the erection of the tombs in the church of Brou, bestowed on him the title of "the king of image-makers" (*souverain tailleur d'images*). M. Gonse, who also ascribes to this sculptor the work of completing the tomb of Jean sans Peur and Margaret of Bavaria, at Dijon which was begun by Claux de Werve, quotes from a request of Le Moiturier's for a reduction of taxes, in which the unhappy circumstances of the sculptor's lot are feelingly set forth. Of this monument, which M. Gonse says "closes, by one glorious stroke, the series of masterpieces of Gothic statuary," an English writer, Agnes D. Atkinson, to whose article on this tomb, in the *Portfolio*, we are much indebted, has written these fitting words: "More sumptuous designs, finer work, more elaborate detail, may be found in many a stately monument in France. But it were difficult to find a memorial of the dead more impressive than this quiet figure of the wise councillor and gallant knight, Messire Philippe Pot, lying with upturned face and praying hands, whom the eight bowed and shrouded mourners bear onward to his rest."

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

"A QUESTION OF COMMISSION," AGAIN.

CINCINNATI, O., June 19, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — I have just read in your issue of June 13th, under the head of Communications, the first article on "A Question of Commission" signed E. H. O. I am free to confess that, after having subscribed to and read your paper since 1876, I have never seen a more heretical or treasonable decision.

Can you realize what a premium you are placing upon the dishonesty of that class of clients whose creed is to get everything for nothing? Do you realize, also, that there are certain (so-called) architects who make a definite portion of their income from contractors and material-men, and not making any pretence whatever, of getting five (or even two-and-a-half) per cent on the cost of the work as their commission, are satisfied with taking as much as they can from the pockets of owner or contractor alike and impartially, for they know or care comparatively little about either good design or thorough construction; certainly, nothing whatever for the good of the profession or community at large.

Do you really confess in print, that knowing the sum and substance of Sections 2, 3 and 4, of Article III of the Constitution of the A. I. A., and as a further result of the acquaintance with some of the best men in a noble profession, that this opinion of yours is just and equitable to either the architect or his client? You must know that your paper has some influence with both architect and client, but I will do you the justice to imagine that you cannot be aware of the possible extent of the damage that such an opinion may do, coming from a paper so generally and generously patronized by the profession. You surely have not read E. H. O's letter aright, or I have not done so; for were he (working under the direction of his client for a $4,000 house, and after telling him more than once that either he must pay more for his house, or content himself with fewer requirements) to continue to work for him in good faith and believing the client to be honest, I do not see how you can give as your honest

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opinion, that the client may, with a clear conscience, return the plans and pay nothing for them.

You make the architect, furthermore, responsible for the builder's estimate: this may be so in England, where the architect is paid for estimating, but in the United States the architect and contractor are separate and distinct individuals.

Should the architect give his services gratuitiously to the community at large any more than the editors and proprietors of your periodical? I am, very truly,

Wm. Martin Aiken.

Cincinnati, O., June 19, 1891.

To the Editors of the American Architect: —

Dear Sirs, — Noticing in your edition of the 13th inst., your reply to "A Question of Commission," brings to my mind a question which I should like to ask you: Mr. A. calls and orders plan for house costing $3,500, at same time submitting ideas for house for me to work up, which using the materials he proposes, I find after plans have been laid out would cost client from $12,000 to $13,000. Which plan is my client ordering, the $3,500 plan, or the plan for the $12,000 to $13,000 house? Most respectfully,

Lucian F. Plympton.

[Perhaps the more extended reply to E. H. O's. letter contained in our editorial colums last week will have already answered some of the observations which Mr. Aiken and Mr. Plympton make in these letters. We are very glad, by the way, to receive such letters, as well as everything tending to promote a discussion which will result in throwing light upon a point of such great importance to architects. If our professional readers will try to recollect how many instances they have known of architects making enemies of their clients, of losing business to which they were fairly entitled, and of having to part with substantial sums out of their own scanty incomes, through misunderstandings as to the intended and the actual cost of their buildings, they will, we are sure, look kindly even upon what appears to be "heretical" and "treasonable" attempts to elucidate the situation. Mr. Aiken, by the way, will remember that in the reply to which he takes exception, we were not called upon to pronounce any decision of our own, but simply to give information as to the law which the courts have established on the point. and the Supreme Court decision which we quoted at length last week shows, we think, that we did not greatly misstate the view which judges take of it. As to Mr. Plympton's question, which is a very apt one, the best thing we can say is that it is exactly the question that the architect ought to ask his client. It is not very difficult for an architect to tell, at the outset, whether his client's ideal of the house he wants to build, and the price he wishes to pay for it, are compatible, and, if not, the sooner he asks which of the two ideals he is to conform himself to, the better it will be for all parties. If he omit to have this point settled in the first place, and has to apply to a court to settle it for him later, it will be a question for the jury whether his client really meant to have him conform to his ideas of arrangement, regardless of the cost of carrying them out, or to give him something as nearly resembling them as could be had for the price mentioned; but experience shows that, if there is any doubt, juries generally lean to the belief that a man intends to have his instructions as to price followed, in preference to those about the arrangement, if he cannot have both.

In practice, the case is usually more complicated than the one Mr. Plympton supposes. The client begins by saying that he wants a four-thousand-dollar house, and then calls upon the architect every day for a month or so, each time with a new idea as to something that he wants incorporated into the plan. When all this is done, it is found that the house will cost six thousand, and there is mutual unhappiness and aversion, followed, perhaps, by a liberal contribution out of the architect's pocket into that of his client, to settle the matter amicably, or a still more liberal transfer of cash from the same source into a lawyer's pocket, in order to get a settlement by force. The question which will come before the jury in such cases will be: Did the architect give his client sufficient warning that the variations which he asked for could not be made without increasing the cost beyond the limit he had set? If not, ought the client to have known that the variations would increase the cost? Jurymen have, generally, commonsense, and will not believe that a man could add unreasonably to his first idea of an arrangement without knowing that additional cost would be involved: but they will, at the same time, think it strange that an expert architect, employed to advise his client for his best interests in every way, should not warn him when his wishes began to run beyond his means. Architects, partly, perhaps, through the effect of the currish custom of volunteering to do work on approval, or for nothing, are singularly bashful, as a rule, about mentioning money matters to their clients. If they would occasionally put themselves mentally in the place of the latter, and ask themselves how they would feel if, for example, they should order a fifty-dollar suit of clothes, and should innocently pick out some samples of cloth, and the tailor, without making any comments, should make up the suit and send it home, with a bill for a hundred and fifty dollars, instead of fifty, they would be more frank in coming to an understanding with their employers at once on all points of doubt, greatly to the advantage of all parties. Nor, as we believe, would such a course tend to turn business out of their hands, into those of the cheats and robbers, but the reverse. The best clients, who have the most money to spend, and give the architect most discretion in using it to advantage, wish, above all, to be able to rely upon the man to whom they entrust their building operations. They may be perfectly willing to spend three times the amount of the original estimate, in making their buildings three times as beautiful, or solid, or convenient, as they first intended; but they like to know what they are going to get for the money, and do not at all fancy concealments or tricks, by which they are unexpectedly bled of sums for which they cannot see that they obtain any equivalent. — Eds. American Architect.]

NOTES AND CLIPPINGS.

Demolition of Viennese Barracks. — A bill has been introduced in the Austrian Reichsrath for the demolition of ten of the Vienna barracks, eight being in the old town and the two others in the suburbs, and for their rcërection in the outskirts of the city, the money to be provided by the sale of the present sites. The value of the sites is estimated at between forty and fifty million florins, a sum deemed sufficient not only for the reërection of healthy barracks in the outer circle, but also for the construction of a system of detached forts for the protection of Greater Vienna. There will still remain three large barracks in the old town, but the greater part of the garrison will be quartered outside. It will take ten years to complete the plans, and it is hoped that the impetus which the works will give to so many trades will check the decline of Vienna. — *New York Evening Post.*

Red-hot Hot-water Pipes. — During the discussion that followed the reading of Mr. W. E. Worthen's paper on Steam-heating before the American Society of Civil Engineers, recently, the following statements were made:

Mr. H. W. Brinckerhoff, M. Am. Soc. C. E. — A very intelligent man who had put in a great deal of the old-fashioned hot-water apparatus, without an expansion-tank, once told me he had worked up to pressures as high as 1,200 pounds per square inch, and added that he had seen the flow-pipe from the boiler visibly red in the dark; in other words, the water was red-hot. I was rather inclined to think that he might be correct, incredible as it seemed, because, on looking up the matter, I found that steam at 1,200 pounds per square inch has very closely the temperature of iron at a red heat in the dark. Besides, I was influenced by the example of a very polite Frenchman, who, after listening to a story related by a friend, said: "If you say you have seen it, I will believe it, but I would not believe it if I had seen it myself."

Mr. Worthen. — You will find in Perkins's treatise on hot water, he states, as a particular fact, that the pipes get red-hot.

Mr. W. J. Baldwin. — Mr. Perkins provides an expansion-tank; he expands into the tank all the steam that is formed, so that the pressure on the water in the apparatus is elastic, the circulation goes on below it.

Mr. Worthen. — Suppose it did not circulate, would it get red-hot?

Mr. W. J. Baldwin. — Yes, sir.

The liquidating process heretofore referred to is going along quietly and smoothly. The greatest security against possible disasters or serious dangers is the general apprehension existing upon all sides, and the strenuous efforts which are being made by business men in all avenues to guard against evils. This anxiety is a good thing. It would be well if it could be continued as a checking or conservative factor. The constant danger to which business men of the United States are threatened is to overdo business, to crowd production too rapidly, to build too many houses and give too long credits; in short, to strain at every point where business is to be made or advantages over competitors to be secured. It is true that commercial failures are not running much ahead of the limit last year. A careful study of the failures reveals the fact that they are occurring about where they ought to; in other words, the failures are doing good rather than harm. These failures are proving to the business world that it is useless to try to push business beyond certain limits. A variety of favorable influences can be detected in the business world; among the most patent is the diminution in the outflow of gold, which is being harped upon by all financial writers. The harm of the outflow was not as great as predicted, nor is there that advantage in the stoppage of it that is supposed. All appear to agree that there will be an early and voluminous return of gold. Even if so, there will be no particular advantage in this, excepting to the extent that this return strengthens confidence. One weak spot in our American business affairs is that confidence is too easily unsettled, and is unsettled where there is no occasion for it. A certain amount of consumption in the aggregate can be relied upon every year, and goods and merchandise must be manufactured and sold to cover these requirements. The ebbs and flows and ups and downs of trade have really very little to do with actual trade conditions. If business is not done this week or this month, it will be done next week or next month. The deficit in business in the past six months will probably be compensated for during the next six. Railroad returns of net earnings from 135 roads for April show an increase of about three and one-half per cent over April last year, and April last year showed an increase of fifteen per cent over April of the preceding year. This statement goes very far to contradict all the bearish predictions and reports that fill the financial columns of metropolitan papers. While there is constant danger of stringency and overproduction, the danger is really not as imminent as the sensational financial writers make it appear. They must have something to write about, and frequently exercise their wits in speculative vaporings about nothing. The real danger to which the country may be subjected is not considered; it will be time enough to consider it when that danger is at our doors. Foreign financiers have spoken of it often enough. American managers of financial interests have ignored these possible dangers all along. The general business of the country is in pretty good shape for the latter part of June. The strong feature is the great activity in the little industries all through the country. There is a wonderful industrial activity in nearly all sections of the South. The very latest reports from cotton manufacturing centres show that the makers of cheap cotton goods have been booking heavy orders. The promoters of new cotton-mill schemes feel greatly encouraged, and those who are familiar with this line of business state that there is at this time more projected cotton-mill building than even last year. Those who are investing their money in this direction are prudent and experienced business men, and they say that the capacity of the South and the advantages of the South as a cotton-manufacturing centre have never been fully estimated. It is understood that a number of Northern textile manufacturers are considering plans for the erection of textile mills to manufacture higher grades of goods than have yet been made in the South. The other industries of the country are safe. Production in all lines is in the limits of market demands. With the turn of the half-year there ..l be a general improvement in demand, for two reasons: first, because stocks have been permitted to run down low, and second, because builders, manufacturers and managers generally have finally made up their minds to push ahead. The latest reports from the iron trade are rather encouraging. From the lumber interests the news is not particularly bright, but that industry will come out all right a little later. The agricultural West is full of heart and hope over big crops and good prices.

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